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ACTIVATED CURRICULUM

Books by A. GORDON MELVIN

PROGRESSIVE TEACHING

THE TECHNIQUE OF PROGRESSIVE TEACHING

BUILDING PERSONALITY

THE NEW CULTURE

THE ACTIVITY PROGRAM

ACTIVATED CURRICULUM

ACTIVATED CURRICULUM

A METHOD AND A MODEL
FOR CLASS TEACHERS AND
CURRICULUM COMMITTEES

BY

A. GORDON MELVIN

COLLEGE OF THE CITY OF NEW YORK

THE JOHN DAY COMPANY

NEW YORK

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MANUFACTURED IN THE UNITED STATES OF AMERICA

At the Van Rees Press

To

C. HANFORD HENDERSON

Our Most Enlightened Philosopher of Education

FOREWORD

Everyone today is looking for change, for reform. And of every reformer the man in the street asks glibly, contemptuously, "What is your plan?" He commits the eternal fallacy of asking for rule of thumb, for mechanical blueprint in the affairs of men. For the rules that will add up to Heaven on Earth. To all such I say—this is my plan.

What they ask is tricks, magic, legerdemain. They ask for a serpent and receive bread. Bread that must be slowly eaten, digested, and find its expression by the nourishment of parts of the body into acts. Thus will the world really change. A new knowledge, a new curriculum, a new world.

It is appropriate here to mention my best critic, Richard J. Walsh, President of the John Day Company, for invaluable aid in reconstructing the original draft of this book. I am also deeply indebted to my colleague Dr. David Weaver for sound constructive advice. My wife, as always, has been tireless in her assistance, especially by drawing the cover design and the interior charts. To all these I present my sincere thanks.

A. GORDON MELVIN

New York, 1939

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PART I
THE NATURE OF THE CURRICULUM

We learn to do by doing.

—ARISTOTLE

CHAPTER I

A NEW ERA FOR ACTIVITY SCHOOLS

RECENTLY I talked to the youthful and brilliant young editor of a famous publishing house. He holds his position largely because of the fact that he has had no college education. He was not made into a misfit. He abandoned college halfway through when he found it becoming increasingly uneducational. He deliberately abandoned it. He left New York. He went abroad. He wrote a novel. He helped others to write novels. Then he came back, having used the world as his curriculum, so that he can now serve publishers by giving them a new outlook. He knows what is going on. He sees what is coming. Schools have never blinded him to the real world.

Such cases must help us realize our deficiencies. Education must not become smug. If the activity school is to make new strides, if we are to move on freshly into the future, we must take the fortress of a new curriculum. Recently I have visited schools in many countries. There are some countries where modern education has been deliberately destroyed. Countries where true education must be suppressed because it leads to free speech, free thinking, independent action. Emperors must not be disturbed, military aggression must not be curbed, blood must not be assuaged, steel-protected dictators must gorge themselves with oratory. But there are other countries, newly awakening, in which things are far

different. There are signs of fresh beginnings in the schools of England, Ceylon, India, and China. Here and there throughout the world I have seen active plans in operation. In some places they are highly developed. In others they are timid and aspiring. But wherever the human spirit is not being increasingly enslaved there is a sensing of the possibilities of a modern education for a new world.

In America we are in danger of a standstill. Too many progressive teachers in America already *know* what is the last word in school practice. Too many are self-satisfied. Too many have finished thinking. There are too many progressive schools where technique is poor, but enthusiasm is high. Too many schools where activity is plentiful but learning is scarce. If we do not proceed into the realm of curriculum, making it a new and clear part of our activity procedures, our pupils will languish for lack of learning.

In the area of curriculum progressive theory is most difficult to apply. Consequently, in much of their recent thinking, Americans have left it alone. They have preferred to deal with what they are beginning to understand—the child. Child-centered theory, courses on educational psychology, child study, clinical practice—all have emphasized the child, and new knowledge and understanding of the child. It is the world about him that we have failed to understand. So we have left it alone.

Curriculum makers must understand the world in which they live and must believe in it. It is here that we have lost our grip. Americans have lost faith in the world around them, and children have lost faith in the cur-

riculum falsely supposed to be derived from it. For the curriculums of today are an inheritance of the past. They have crystallized within themselves not merely the content of a world of long ago, but a mode of thinking, an attitude toward life, which no longer meets our needs. They contain dead matter. They are organized upon a dead principle. The content is orthodox knowledge, deposits of stuff patched up and modified by an unconscious longing toward new material and a new principle. The old principle on which these curriculums are organized is logical and dialectical. By means of it we can classify dead objects which lie inert and unchanging in some pigeonhole or cranny. But we cannot so classify and control living things.

Actually our world has begun to wander, and the walls between subjects and subject matter have first become transparent and now are melting away. Well-paid educators operate bureaus to control these miscreant and recalcitrant curriculum materials; but they have set their heart on wandering, and wander they will. Chemistry was once chemistry, but what is it now? Physics hardly knows its old self. Algebra is on the verge of becoming useful, and mathematics is forgetting its pride and isolation. No man of forty knows what is most worth knowing about the modern world unless he has thoroughly re-educated himself. If he is half alive he is wondering how many times he must do the job over again in years to come. Fortunate indeed is he who has discovered through all the change the eternal verities which exist as a least common denominator of all the worlds of time. We need a vast social bureau where we can turn in our concepts,

have them done over and brought up to date. Our schools will be such when we have new curriculums for old.

The activity concept is not a modification of an old-fashioned principle of learning. It is a new concept inherited through Pestalozzi, Froebel, and Parker. It is a revolutionary concept in education. Culturally it is a new basis for construction. Beginning with children, it moved slowly through generations to a new practice. It tried to keep up with the world by hop-skip-and-jump notions of curriculum. Grab what learning you can while you may, for tomorrow who knows what we should learn? The world was changing, and no one understood it well. The new principles of society and of life had not emerged. The world kept us guessing. Schools worshiped Aristotle but went whoring after other gods. But now we have abandoned Aristotle—not the true Aristotle, but what blind scholars have made him. We have given up a world catalogued and parceled out in the language of for-good-and-all. Human beings have become the classifiers, the doers, the goal-setters, the builders of a new world. If we have the spirit to control it the new world is just ahead. We catch glimpses of it every day. On the basis of its new order, on the basis of a new and active scholarship, we may build a new curriculum. Men and the world are alive. So must be our new curriculum.

CHAPTER II

TEACHERS WANT A NEW CURRICULUM

AMERICAN education is failing, but most of those who are not pupils don't realize it. Recently a graduate student in one of our great universities worried about his studies, took a lethal quantity of sleeping medicine, and walked until he collapsed. He was found frozen to death in a wooded section of the countryside. A long and serious education in our schools did not succeed in giving this young man philosophical and spiritual resources sufficient to meet the needs of the life he encountered. There are many thousands like him in a lesser degree. American educators dare not be content with educational conditions in the world around us. We cannot continue to lead children into a world which neither we nor they pretend to understand. We must understand our world and let our children understand it too.

Teachers teaching by activity programs crave a definiteness which is lacking in the make-up of modern schools. The first problem of teachers who are being introduced to new school procedures is that of curriculum. Their whole background has been concerned with the matter of knowing what to teach. It is mere sophism to answer that we are not teaching subjects but children. This is but to win an argument by rhetoric. It leaves the asking teacher in a dilemma. It corrects a point of view by focusing attention on the child, who too often was for-

gotten for the sake of the subject. But it still does not tell the inquirer what is to take the place of the subject. When the original question has been answered by, "Teach the child, not the subject," a new question arises: "Teach the child what?"

This question has been pertly and evasively answered by many who have prided themselves on the *élan vital* of their new schools. For children, if left to themselves, are so charming and so engaging that they trick even their mentors into a belief that they are learning. Thus many a happy and a busy school is a school running on low gear. The question, "teach what?" has been briefly answered by the most debonair of the new school people by the statement that in the modern school there is no curriculum. Probably there is no world, no society, nothing to learn—or how can there possibly be no curriculum?

That the proud and self-sufficient principal in her inner office forbids the use of the word curriculum, is a mere pretense, a mere worshipping of nonexistent gods. Curriculum there is, and in the very house of those who deny most vehemently. For in that very school where curriculum is denied you will find the same activities and similar learnings proceeding annually with a monotony which increases as the school goes down into its unchanging years. The everlasting tea party, the toy airplane *ad infinitum*, and boats, boats, boats. This pose is merely retreat from reality. Timid schoolmarms retreat from a world they dare not understand. If there be anything you value, you must teach it. If the world means nothing to you, it matters not what children learn. It is the effete, the defeated, the drifter and roamer on the face of the earth, the man without a knowledge of what the world

is all about who cries "no curriculum." He has no curriculum because he knows nothing important himself.

Bolder souls, feeling a lack, have developed a phrase to cover what they call an "activity curriculum." They have listed all the endless things children busybody about. Any child can fill in a day, alone and unguided, and learn much by the way. Yet the teacher need not abdicate to the child. Unguided by a knowing teacher, the activity curriculum may become just a much-ado-about-nothing curriculum, and the days of children a vapid series of almost goalless activities. The children continue to do a great deal about nothing, because there is nothing to do anything about. Teachers who talk of activity curriculums have taken the first step toward an activity program but dare not take the second. They assume in their inner consciousness that there must be goals, but since activities are fashionable they parade activities and bootleg goals. They coach children in arithmetic drill behind closed doors, and hang out "no visitors today" signs to ward off predatory critics of modern practices.

If there be anything to teach, there must be curriculum. Modern education must face that proposition flatly and forthrightly. If activity schools cannot develop and use curriculums consonant with their own practices, they are not schools worthy the name.

CHAPTER III

THE COMING EDUCATIONAL REVIVAL

NO man understood education better than Pestalozzi, yet in the name of observation he kept children indoors staring at patterns in the wallpaper and cracks in the wall. In the name of proceeding from the simpler learnings to those more complex he set the hapless youngsters at the study of syllables, -ab-eb-ib, thus impeding their natural progress through sentences to reading. One can be creative with the brilliance of the sun, one can burst with an inner enthusiasm—yet it is not enough. Most people know what they want, but they don't know how to get it. We all hope for good children, good citizens. We could list their hoped-for virtues by the column. Drive, energy, the will to do, are not enough in a teacher—even the spirit can fail. In addition there must be work, backbreaking toil, monotonous, slow, thorough, patient, incorrigible struggle for technique, skill, mastery. Knowledge of the world is specific—this gneiss, this lapis lazuli. Knowledge of what to do is specific—to slap and not to smile. Knowledge of what to teach is specific—the electric current flows from this pole of the battery to that.

Teachers may teach a fact without mentioning it, but they can't teach it if they don't know it. Teachers need to know children, but more than children—they must know the world specifically as curriculum. They must know *what to teach—curriculum*, and *how to teach it—tech-*

nique and *method*. Certain "progressive schools" which are decaying in their own self-satisfaction, employ without salary young men and women to teach apprentice-fashion. Having tricked such youth to teach for nothing, they balance the budget by allowing them to learn nothing. The self-satisfaction of all with this educational bankruptcy is appalling. The children lurch and maul themselves through clay and paints and messy arithmetic papers, and come out in a neurotic daze of selfishness at the age of twelve. The teachers embrace some form of psychic palliative—an unconventional psychology which salves their emotions, a radical political philosophy which absorbs their restlessness. The apprentice-teachers—often charming and fresh young people, taken for training on the very basis of their unspoiled personalities—join the selfish orgy of independence and unconventionality. Beginning with a spiritual urge toward helping children, they find the children already spoiled, already saucy, already sexy, already becoming as impudent as their teachers and their self-satisfied, self-important principal. Thus are these pupil-teachers imposed upon, and their naïveté tricked into a belief that it is all-sufficient. There is nothing to know, nothing to learn, nothing to do but fiddle through life with the maximum of sensation. Such is our senseless sense education. Learning becomes a by-product of sensation.

Such apprentice-teachers—assured that there is nothing to teach and no particular way to teach it—settle down in the lotus land of the elementary school. But had they not been lulled into false security, they would have asked two very definite questions of those from whom they hoped to learn. These questions are: "What shall I

teach?" and "How shall I teach?" The answers to these questions they have a right to expect in specific form. The second question can now be answered in terms of specific technique in progressive schools. In terms of method it cannot yet be answered in specific terms. So far as I know, no organized account of method of teaching in progressive or activity schools has yet been made public. The first question has never been answered at all, and few have even attempted to answer it with understanding. Yet it is the teacher's first question.

Long experience in training teachers to teach in activity schools has led me to observe that the first question that most teachers of experience wish to have answered as they contemplate the problem of teaching by activity procedures, is the question of curriculum—what shall I teach? For years I have met this question by the application of an anesthetic. I have assured them that they could struggle on tentatively with their present curriculum. That they could accept their own notion of curriculum and develop modified activity procedures to enable the children to reach it by activities. If one understood the *how*—he might angle tactfully and generally for the *what*. I have always known this answer to be insufficient, but I could give no other. But the time has come when another and a more satisfactory answer must be given. Teachers in activity schools need a notion of curriculum as definite as their notion of activities.

As so often happens, we must teach in the opposite order from that in which we learn. Teaching is the opposite of learning. In the actual development of activity schools activity has come first. Curriculum has not yet come. This is our present dilemma. The changes which have come

with the application of the activity idea to the development of children have been amazing and delightful. Schools all over America and in many parts of the world have been fertilized and changed for the better by the onrush of activity programs. Yet teachers who hope to begin in this direction still ask the question of curriculum. When that question can be answered specifically instead of vaguely, there will be a second revival in the schools of the land.

The development of a new curriculum, consonant in spirit, method, and form with the work which is being attempted in activity schools, will bring about an educational reform as drastic and as sweeping as that which has come in the name of activity methods. Not only this, but a new curriculum will stabilize practice, clarify the experience of children, and open new vistas for an education both spontaneous and untrammelled. It will develop programs of education which do more than drift into action. It can develop children who have the spirit, the initiative, and the energy of those of today into adults who transfer those powers into terms of action in the adult world. There is much to expect from a new curriculum. Let us turn to this problem as the problem of the hour. We must know what to teach.

CHAPTER IV

PRINCIPLES OF CURRICULUM CONSTRUCTION

A NEW curriculum can come only as a result of new principles and criteria for curriculum construction. Such principles must be in harmony with the activity program, must be derived from the same basic philosophy and have the same outlook. They must have their rise in an organic philosophy, a philosophy of wholeness, a philosophy which is active rather than passive, dynamic rather than static. For from such a philosophy comes the concept of the child acting and learning as he lives.

THE OLDER PRINCIPLES OF CURRICULUM CONSTRUCTION ARE INTELLECTUAL— BASED ON LOGIC

In order to throw into contrast the principles which must build for us a new curriculum, it is necessary to give some account of the principles which they are intended to supersede. This may be done by giving brief consideration to the way in which the typical older curriculum, such curriculum as was used fifty years ago, was actually developed. Thus it will be clear first what not to do, which will help in understanding fresh procedures. For it is unfortunately true that there are at work today many who believe themselves builders of new curriculum procedure who have nevertheless never shaken off the old in pursuit of the new. Such curriculum ex-

perts, going but halfway and proceeding only by the dim light of some educational "hunch," produce results which are disconcerting and arbitrary, puzzling both to teachers and to those who would be taught. How, then, can it be that teachers who use these "new curriculums" can make their classrooms going concerns? It is because of their remarkable ability to win the co-operation of their pupils in any program which they sponsor. For teachers have a strange and unwholesome way of confiding in children, explaining to them their educational lingo and the pet terminology of their half-understood fads. Is it for want of a better audience, or because of that need for sympathy which goes with hesitancy? By winning the aid of their sympathetic youngsters, teachers can make any program go. Thus units and projects, outcome and approaches, march merrily on by some pleasant teacher-child conspiracy against the administration. What else can teachers do when the old ground has been abandoned and the new is not broken?

The first step of the old procedure was to split up the content of the whole curriculum into subjects. At various times the basic content of subject matter has marched under different banners. Witness this list of the subjects which were common in the elementary school at various periods not so long ago.

This cutting up of the whole into its parts according to the educational light of the times produced in early American life some such simple patterns of elementary school subjects as: *reading, writing, arithmetic, geography, history, nature study, drawing, music*. The time was not yet for handwork, for with the entrance of that interloper a new principle was posed. So long as hand-

work or manual training could be held off and kept at bay, the old principle was safe. It might have been safer still without drawing and music; but those heralds of a new day could still be kept under, could still masquerade under the general banner of "subjects" and be treated or maltreated accordingly. Thus children drew what they were told to draw, and sang what they were told to sing, and gave it all up as soon as they escaped school.

Blessed order can descend upon a school once this basic organization into subjects has been settled. For in any program of organization a basic analysis is essential. With the subjects decided upon, the second step in curriculum making was in order. This was the listing of the important facts or informations to be learned. Information was not so widespread in those days as it is now, for the community was not then so persistent. Some will recall their childhood lesson books in *useful knowledge*. The miscel-

DEVELOPMENT OF ELEMENTARY SCHOOL CURRICULUM
FROM 1775-1927

1775	1825	1850
Reading	Grammar	History
Spelling	Reading	Language and
Writing	Spelling	Grammar
Arithmetic	Writing	Reading
	Arithmetic	Spelling
	Conduct	Writing
	Bookkeeping	Arithmetic
	Geography	Conduct
		Bookkeeping
		Geography
		Object Lesson

<i>1875</i>	<i>1927</i>
Drawing	Social Sciences
Civics	Physiology and Hygiene
History	Literature
Language and Grammar	Art
Reading	Civics
Spelling	History
Writing	Language and Grammar
Arithmetic	Reading
Conduct	Spelling
Nature Study	Writing
Geography	Arithmetic
Music	Supervised Play
Physical Training	Nature Study
	Geography
	Music
	Physical Training
	Cooking
	Sewing
	Manual Training
	General Science
	Auditorium Activities

laneous assortment of fare ranged from data on the source of pearls or sponges to remote accounts of Chinese queues or chopsticks. Today youngsters learn these things and a thousand more from newspaper brain-teasers, comic strips, newsreels; while every chop suey restaurant sells chopsticks and Chinese tea. But this useful knowledge of earlier days was just a curriculum repository for the left-overs. Tidbits which did not fit neatly enough under the headings of nature study, geography, or history. Little did

those curriculum makers suspect that here, in the useful knowledge books, was that touch of nature which makes the whole curriculum kin, the lurking extreme case which indicated the fallacy of the whole approach. Life won't package up. The six or eight parcels named subjects could not hold it all. The choicer bits, because they were more alive, squirmed out. Coral is made by tiny animals far away in the tropical oceans, cork is the bark of an exotic tree, and the stars are not mere miles but eons distant there in an endless sky. Logic is superb, but it will not capture life.

The listing for curriculum of important facts and informations required the work of scholars. They combed books, they collected data from afar. They organized, classified, and codified. Geography fell into its continents, and continents into their nations, nations into provinces, and provinces into towns, lakes, and rivers. Even the people of a country received grudging recognition occasionally under the title of "population," but they could not stand before the pressure of imports and exports. History gave us dates and the lists of the kings of various countries, with their reigns. For history is a very glory to curriculum makers of the old school. In history every fact is literally an egg, which can hatch out as many new facts as the historian has a mind for. You can never exhaust history, for there is always more to read about everything. You may read sideways or backwards, if you have plenty of time and can remain untroubled about the future. Nature study could include all that is unnatural, all dead plants and flowers, and all dead parts of them, as small as you can cut. The collecting of data could occupy curriculum makers forever, for even if the store

of facts and informations could be exhausted, the decision concerning which should go in and which should be left out would remain an endless task in itself. Thus curriculum makers were busy men indeed.

The third task of curriculum makers under the old regime was the logical organization of the selected facts and informations. Informations soon became liberally interpreted. This further complicated what had hitherto been simple. For a *fact* or *information* soon became diluted or weakened to include a *skill* or an *understanding*. Thus a good curriculum element might be not merely a plain, straightforward statement that Henry VIII had six wives, but it might include an understanding of why he had six. A skill in arithmetic was not merely to know what the right change should be, but to give it—a much rarer accomplishment. This opened up new possibilities for curriculum construction, and reforms swept the country. Constant social change and the advance of the profession of education produced whole curriculum bureaus, and professors of education sprang up posing as curriculum experts. The need for them was obvious when one considers what curriculum had grown to. Curriculum specialists mastering so extensive a field could naturally find little time for an understanding of the other problems of teaching, such as method, philosophy, or the nature of children. Teachers in the classroom, however, had to deal with all these elements concurrently!

Logic scatters. That is what it did to curriculum. The learning to be learned was predetermined. It was dried out like concentrated food tablets. It was dessicated. It lost its flavor, its natural function, its interest. It developed a new function, similar to the function of con-

centrated food pellets. It became a strengthener. It did not exercise the all-round aspects of the person. It developed intellect, it strengthened mind, at least so it was thought. No one who does not think so can hold fast to the old ways of curriculum. Nevertheless many who do not understand that by so doing they convict themselves of belief in formal discipline, still try to hold on. Under the old scheme learners became scholars, and learning unfit for children. It became the property of a special class, of an educated group, of a learned society. Schools were for scholars.

Democracy undid all this. Democracy says that learning is for all, and schools and curriculums must change before this dictum. But the curriculum makers decided to give the old ways a new lease of life. They discovered *life reference* and *job analysis*. Here again was the hesitating recognition of the inadequacy of pure subject-matter curriculum. The divorce of the school from life, and of education from the practical problems of life, was gradually being recognized. *Frequency of life use* was now considered as a basis for the selection of curriculum material—no use to teach the spelling of such words as *diuretic* or *Aleutian*; teach *hammer* and *tongs*, since these words are found to be needed in the life of every man. Curriculum makers now left their office chairs and went out into the community (or at least from the advantage of an office chair sent out questionnaires), and said in effect to people: Just what *do* you say, what *do* you write, what *do* you read? Letters of children were gathered and their vocabulary analyzed. Newspapers were examined and a word count taken. The sparsity of vocabulary on a given level was taken as a standard; fashion became the mode.

What the average individual knew, all should know; for such aims were supposed to harmonize with the doctrines of *frequency of reference in life situations*. What was not frequent was not Hoyle.

The investigations were carried into the area of arithmetic. But the standard of fashion was not used in all cases. Although many people count on their fingers, this was not regarded as life, and was never recommended. Other common practices, however, were sanctioned on the basis of frequency. Men (businessmen for the most part; reason for that choice not given) were asked just what arithmetic they actually did use. It was found that they add, subtract, occasionally multiply. The fact that adding machines, or accountants, or interest tables, or some other device did most of the work was not regarded as pertinent under the principle of frequency of reference in life. Thus what actually did happen was sometimes not noticed. It was what did not happen which was most startling. Not only did businessmen not use cube root; they did not even use square root. Many of them seldom used decimals, longer methods doing the work quite well in most cases. Thus curriculum makers found their work much simplified. Life and arithmetic were not so complex as they seemed. The problem of teaching arithmetic was simplified, at least in theory.

Job analysis exercised certain curriculum workers in a somewhat different though related fashion. They sat on the side lines and watched jobs (or sent questionnaires). What did a man do? Knowing this, you might judge what he should learn. In an automobile factory a curriculum maker might take up his stand beside a worker. Perhaps the man's job was the adjusting of a certain bolt on a new

Musicians in Collaboration in Public School 24, Manhattan

The pictures in this book are all records of work in the Public Schools of New York City. They are used through the courtesy of Dr. John J. Loftus, Assistant Superintendent of Schools in Charge of Curriculum



car as it passed down the belt. This job might be analyzed: hurry to get the bolt adjusted before the next car arrives on the belt; fasten the bolt with a wrench. Such a job analysis would possibly indicate what education a prospective bolt man would need. Evidently in this case he would need to know how to use a wrench. On the basis of such an investigation, therefore, a curriculum maker might decide that secondary school pupils who are destined to fasten on bolts in a belt line should learn to use a wrench. Difficulty would arise, however, when the teacher found herself unable to guess which pupil was destined to be a bolt man and which a lacquer man.

In more complex cases the problem is slightly different. An analysis of the work of a postal clerk, for instance, might indicate ten steps or so in his day's work, such as getting out the cash, getting out the stamps, selling them, figuring up sales, closing the cash. If analyses of the commonest jobs in the community, such as telephone operator, subway guard, drug clerk, dentist's assistant, were made and the steps compared, certain common elements might be found to run through all, such as very early rising, hasty eating, work under pressure, reading, writing, figuring. Since curriculum makers seem to have felt that little could be done about the pressure habits of modern community life, such investigations throw most light on certain general skills and informations, and so curriculum bureaus have found reinforcement for the traditional elements in the curriculum involving such skills as those needed for reading, writing, and arithmetic!

Job analysis has not been particularly fruitful as an aid to curriculum making. It came, however, as a symptom of a new restlessness and discontent with old-type cur-

riculum. The feeling that somehow education needed closer relationship to life was troubling conscience. Curriculum makers moved on toward new revision in the hope that education might somehow be socialized, somehow be more closely related to the things that men do in the course of living.

The most recent revisions of curriculum makers of the old school have been carried on in the form of surveys. The vastness of these surveys is appalling. They seem to include all the world. A typical survey might proceed somewhat as follows: The first step is to collect and store the printed curriculums of the last decade or so from all possible sources. Dozens of these are available, scores of them, hundreds and thousands. The very storing of them is a problem. But it is nothing to the task of "analysis." This proceeds apace. Some graduate student, whose time might be regarded as precious and needed for study and thinking, makes an "analysis" of certain curriculums already in use. Another man makes another analysis of another group. The analyses themselves begin to pile up, ready for the work of the mastermind who surveys them all. The supersurvey then proceeds, and from the miniature haystack a superhaystack is built. So a new curriculum emerges, a product of a very forest of facts and an orgy of criteria. The soil in the garden has been turned over once more, and activity has led to further activity. What is there left for curriculum makers to do? After this piece of perfection one would expect them to disband forever.

Seriously, the whole matter is shocking. The attempt to renovate curriculum without changing it goes on and on. The attempt to make a new curriculum for progressive

schools in terms of a philosophy which these schools have left behind is tragic. Must education continue to be a laughing stock among those who really know of these professional lucubrations? It is time to turn to new ways.

THE NEW PRINCIPLES OF CURRICULUM CONSTRUCTION ARE EXPERIENTIAL— BASED ON ACTION

Logic scatters; life integrates. Consider an example: A man proposes the building of a house. Toward that projected shell, to be placed over himself and his family as a protection from the weather, a myriad energies and materials are directed. The architect, the builder, the plumber, and the bricklayer all confer upon this shell to be. They set to work. Wood, bricks and mortar, shingles, tiles, and plaster arrive. By a single act of will the owner has decreed this house into being. And it all goes back to himself and his family, living people in an acting world. Because the world changes, the man must act and provide a home; and because he acts, a host of actors follow in his train. It is the man who integrates, and he integrates by acting. The carpenter integrates and builds the walls, the bricklayer the chimney, the plumber a system of heat and water. Acting integrates, acting creates and makes alive.

Logic disintegrates. Let us apply logic to this house that Jack built. We can take it apart without regard to reality in any way we propose. We may regard it, perhaps, as a mass of materials—so many feet of lumber, so many pounds of nails, so many bundles of shingles, and so many tons of brick, so much lime and so many bags of concrete. It can all be estimated by estimable logic. It can be

analyzed without reference to reality, in terms of an abstract pattern which can be reduced to writing and committed to memory. But it can with equal facility be regarded in terms of its practical purpose, its livability. It is composed of thirteen rooms: four bedrooms and a guest bedroom, a den, upper and lower hall, living room, library, dining room, pantry, and kitchen. In addition it has an attic, a basement, and a veranda. A plan of the house may be made, and the whole considered from the point of view of a convenient arrangement of rooms. Has it light, are the rooms warm in winter, cool in summer? Is it bungalow style, colonial, or modernistic? Again the home, with the aid of logic, can be dissected and examined. Still a third system of analysis might consider the house in terms of the people who live in it, or again in terms of its cubic content.

All such analyses break down, rather than build up. They are analytical, logical, but not creative nor integrative. It is not logic but living which creates. Living and acting must guide us in our efforts to build a new curriculum for an era of change.

CHAPTER V

THE NATURE OF CURRICULUM GOALS

PROCEEDING under the guidance of experience and action to build a new curriculum, it is necessary to survey the world in terms of action. How shall we conduct a survey of acts? The obvious answer is to look about us. What is going on in the world? A conceivable approach to the problem is to carry on a wide community investigation, listing every kind of act. As we look about the world we see men doing a thousand things—keeping bees, making tables, driving automobiles, baking bread, writing stories, sewing clothing, growing apples, mining coal. This list is almost infinite; extending it to the ends of the earth, it includes not merely the usual and ordinary but the strange and dangerous—modeling vases from clay or diving for pearls.

These are the things men do, and it is these they must learn to do. If our curriculum be listed in such terms, it appears to the learner as some far-off clime, some happy land. It is a vision of attainment, a list of goals, desirable because understood. A curriculum realized in terms of action may be written down in terms of action. The realization must precede the writing.

Such a roundabout, almost endless method of extensive survey, desirable as it might be, is almost impossible of attainment. Yet some approach to it must be made. The very consideration of this method as a new approach for curriculum specialists and curriculum bureaus opens up

the way for the understanding of new methods of curriculum writing. If it be granted that the most alluring form in which curriculum can be stated to attract learners is in terms of some specific attainment, the key to curriculum format has been discovered. By proceeding to the examination of cases, a set of criteria governing the form of curriculum may be derived. Examination may thus be made of the following list of goals which seem intrinsically desirable if not to all, then to some people:

writing a letter
keeping private accounts
reading the newspaper
using a typewriter
swimming
driving an automobile

Such a list of acts has general appeal. Practically all young people can see without instruction or persuasion the desirability of all these forms of conduct. They are willing to regard them as attainments to be acquired as soon as opportunity affords. But there are many other forms of activity which, while they do not make a universal appeal, an appeal to every individual, make just as strong an appeal to certain people. They seem very attractive to some, to others not at all. At times they make no appeal to a given individual, at others they appeal powerfully to this same individual. Such are the following:

building a radio
making a whistle
raising pigs
playing a musical instrument

roller skating
writing poetry
painting in oils
growing oranges

From an examination of such examples one can pass to the formulation of criteria.

Criterion 1. Curriculum goals should be stated in terms of conduct.

When a curriculum or life goal is stated in terms of conduct, it appears in some such form as the following:

feeding rabbits
raising rabbits
helping a blind person
riding a bicycle
wrapping up a package securely and mailing it
raking up the dead leaves on the school grounds
growing tulips
installing a telephone between two rooms

It is not suitable to repeat here any of the numerous discussions which have already been written by this author on the inherent structure of an act, a unit of conduct, a unit of life, or a unit of activity—all of which are approximately equivalent terms. It is important that would-be curriculum makers familiarize themselves with the structure of an act or a unit of conduct. The concept is a definite one, and represents a psychological or life entity as definite as a brick. The fact that a unit of conduct is described in philosophical rather than in material terms does not rob it of actuality. Yet those who are not accustomed to observing life in this way need some under-

standing and discussion in order to enable them to identify an act of life or a unit of conduct. When the statement is made that curriculum goals should be expressed in terms of conduct, it is assumed that the reader understands the meaning of the words, their philosophical significance, and is able to observe in the various examples quoted above a certain definiteness and uniformity which indicates that each represents a unit of conduct.

It should be quite obvious that the customary method of statement for curriculum materials is far different from this. There are many modes of statement used in printed curriculums of different types. Several type examples of the older method of statement will throw the kind of goal suggested here into sharp contrast. In the following examples the goal is first stated, then its nature indicated by a suitable phrase.

OLDER TYPES OF CURRICULUM GOALS

The Thirty Years' War	Name of a military campaign
How plants grow . . .	Description of a biological process
Ability to multiply . . .	Goal described in terms of a process-skill
Understand air pressure	An understanding of a principle
How teeth decay . . .	Named as a process
North America . . .	A place
The Stars	A topic
Make simple objects of wood	Reference to a general class of objects
Memorize three poems	Identified in terms of a special psychological process

Numerous examples of the hodge-podge of forms under which curriculum goals appear indicate the chaos which pervades the whole area of curriculum construction. It is governed, for the most part, by no theory other than that of eclecticism. Eclecticism is always a confession of bewilderment. The eclectic has to be tolerant and liberal because he has no understanding. He pecks about like a hen for scraps, since he doesn't know how to choose a meal which meets his needs. Curriculum goals, as usually stated, seldom resemble conduct unless, in some modern fashion, the curriculum expert has had some innate flash of understanding. The remaking of curriculum in terms of conduct goals would work a vast improvement in teaching from kindergarten to college.

Criterion 2. Each goal should represent some act or some complex act involving a series of integrated sub-acts.

This criterion, while it resembles the first one above, is intended to indicate the nature of the complex which often makes up a suitable curriculum goal. For example, if one goal be *writing a book* or *painting a portrait* or *making a dress*, it is obvious that many combined knowledges, understandings, skills, and a wide acquaintance with subject matter in many fields are required. The one who makes a dress must first buy the material. This involves much knowledge of where to buy, of the nature of materials, of the technical meaning of "pure-dye silk," the qualities of dyes, the matching of colors, the way materials hang, the suitability of pattern and color to certain individuals. It involves the mastery of various skills concerned with cutting, sewing, and fitting. The untrained

person who commits herself to such a goal as *making a dress to wear*, commits herself to much tedious and complex learning. Every task one assumes is a self-imposed sentence. So miraculous is learning that it transposes this "sentence" from disagreeable hard labor into pleasant and significant activity. Goals stated in terms of generalities or of subject are remote. Conduct goals are significant and near.

Criterion 3. Each goal should be expressed in the active mood.

It is not difficult for an individual or for a class of children to see the importance of accepting as a goal—*sending flowers to a sick person*. The goal, especially if a personal friend or a classmate be the sick person, is immediate and full of meaning. If, however, the goal be set before pupils in some less active form, as "*the importance of sending flowers when people are sick*," or "*the importance of helping people*," the whole teaching and learning process is distorted thereby. Consider the difference in what happens to the learner in the two cases. In the first case, in which the goal is set up and recognized as "*sending flowers to a sick classmate*," the pupils contribute unselfishly and send the flowers. The work of the world gets done. The world is happier by that much, and the pupils have learned and, in learning, improved themselves. What are the results in the case in which the goal appears in the form—"*the importance of sending flowers when a person is sick*"? Something quite different. Scanning her curriculum early in the term, the teacher observes that one of the goals for the term for her pupils is to understand "*the importance of sending flowers to*

people who are sick." She says to herself: "The children must understand this. We shall talk about it when occasion arises." And they do talk about it. They all agree to it in discussion, but nothing is done about it. This is moral breakdown. But this is what happens, not with respect to one goal, but a thousand. It tends to produce passive, selfish people who take out their satisfaction in their good intentions to act. They intend to do something about sending flowers, about arithmetic, and spelling, and about a hundred and one things that pupils hope to learn about. It is good to talk and to discuss, but in this case if the goal be set in the terms of *send flowers to a sick classmate*, pupils who adopt it talk first of the act, then carry it out, and make their generalization last. "It is a good thing to send flowers to a sick friend, and I shall do it again and again as long as I live." The inner connection has been made and, other things being equal, the pupil has improved himself. Goals should be expressed in the active mood.

Criterion 4. Each goal should be expressed in specific form.

There are various degrees of specificity. The more specific and clear the goal, the better for the learner. But too high a degree of specificity would make too long a list of goals. *Planting something in a pot of your own* is specific. *Planting a tulip bulb in a pot of your own* is more specific. *Planting an avocado pit* is also more specific. The lesser degree of specificity, in this case, is the more desirable. It is the task of the teacher to help the pupil to make a specific goal more specific in his own particular case. One does not fail to be specific because he

is not specific to the utmost possible degree. The danger is in not being specific at all. A nonspecific goal covering the same area of learning would be *studying natural processes*. It is undesirable because too general to indicate a path of action.

The curriculum worker must avoid two pitfalls—that of being too general to indicate significance to the learner, and that of being so specific as to be impractical. Establishing such a delicate balance presents a very difficult problem.

Criterion 5. Each goal should be so stated that the life significance, individual or social, of the desired goal should be obvious to the learner.

It should be quite clear to any learner that the goal *making a cake* has obvious social significance. If the maker expects to eat part of the cake, it has also individual significance. Presentation of the goal in an obviously attractive and useful form is an art, which can be acquired only through consciously developed skill and by an understanding of and familiarity with the learners for whom the goals are designed. Some goals should be designed to be attractive to all, such as *predicting the weather for the day*. Only by developing some such complex ability to foretell the weather is it possible to avoid discomfort and even some sickness. Other goals are obviously designed only for some to whom they seem attractive. Such are: *playing the violin* or *sending wireless signals by the Morse code*. Individuals covet achievement. They all want to learn. The presentation of goals

in significant and attractive form is an important and fundamental aspect of the art of teaching.

Criterion 6. Goals need not all be present or immediate in time.

Certain negative criteria are helpful. The fallacy of immediacy is one of the most subtle of the many fallacies which affect human conduct. We are all taken in by it. It is a sign of immaturity to want only the wants of the moment and to want them immediately. Yet children are immature, and to a certain extent the goals which are set before small children must often be immediate goals, quickly realizable in the present if they are to enlist their activity at all. Thus *making a dress for her doll* may be a recognizably desirable goal for a little girl; *making a dress for herself* may be too remote although just as actual and even more important. Such a goal, too remote for a small child, is sufficiently near for a girl of sixteen or seventeen. It is obvious that the younger children are, the more immediate and present must be the goals set before them. Committing oneself to the attainment of more remote goals is a characteristic of maturity, and a characteristic toward which children should gradually be trained. As the individual grows more mature the ability to recognize more remote goals should grow, goals which are remote in time, which will demand a long train of effort, and a long lapse of time in the realization. Thus for a boy *signaling with flags* is a goal sufficiently remote to tax his patience, yet near enough to enlist his effort. With a little maturity the lad can face *becoming a medical doctor* as a desirable goal, although medical schools usually determine that at least

seven years shall elapse between the acceptance and the realization of this significant goal. As we grow more mature we learn to face time spans of increasing length. At last comes the knowledge that time is but a characteristic of a world in the material mode. Then we catch new glimpses of worlds beyond.

Similar glimpses of new worlds appear to those who realize at last that those goals which affect the welfare of others are more significant than those which concern ourselves. *Giving money to an obviously cold and hungry beggar* indicates maturity. *Overcoming difficulties and sending help to war refugees in countries other than our own* indicates greater maturity still. But for children goals must naturally be related to their own persons: *tying my shoe, making myself a toy cart*. For the self is the instrument through which we learn the importance of other selves far and wide. When we know this fully we have become in this respect mature.

Criterion 7. Goals should not be set up in nonfunctional, static, general, or merely logical terms.

Examples which correspond in sequence to the list of adjectives in this criterion above are as follows:

Type of Goal	Curriculum Element
1. Nonfunctional	Study verbs
2. Functional	Using verbs correctly
1. Static	Realize that one should help others by carrying things

- | | |
|-------------|---|
| 2. Dynamic | Carrying a parcel for a friend |
| 1. General | Learn to read books |
| 2. Specific | Reading a book |
| 1. Logical | Speak according to the canons of good speech, proper enunciation, pronunciation, inflection |
| 2. Life | (integrated by act) Talking in assembly so that you can be heard, understood, and enjoyed |

It must be obvious even to the casual reader, from his own emotional reactions as he reads the contrasting types of goals here set forth, that the expressing of curriculum goals according to the criteria above is desirable. Teachers, if there be none other to help, curriculum makers and curriculum bureaus, if they will, should master these criteria and understand the principles involved in them. When this has been done they will be able to produce new curriculums which will stop the present bewilderment. Activity programs will receive a new lease of life, and children will not merely use good methods of learning but will actually learn.

INDIVIDUAL AND GROUP GOALS

On the whole, curriculum goals may be stated in terms of individuals, and teachers may make what modifications are necessary to secure the recognition and attainment of what might be called group goals. *Giving a play in assembly* may be regarded as a group goal. *Publishing a class paper, looking after a flock of chickens, carrying on*

a business in rabbits—these things may be regarded as group goals. But inasmuch as such group goals cannot be set up in advance, but depend upon the matrix of school life from which they emerge, and are a result of the intermixture and interplay of personalities who live through specific experiences together, they are matters of *method* rather than of *curriculum*. Thus they are rather in the area of the activity program than in the area of activated curriculum. Group and individual activities which are highly personal, and characteristic of one individual or group rather than of most individuals or groups, belong in the realm of the activity program. Only those goals which are significant to all individuals of a given degree of growth or maturity and those which are known to be frequently desirable to such a group should be listed as curriculum.

GROSS GOALS ARE NOT THE ONLY GOALS TO BE RECOGNIZED

The necessity of providing simple examples in the preceding exposition may make it seem that all goals are gross or materialistic. Far from it. Simple and materialistic goals are easily stated: *sharpening a pencil, making a fire*. But goals of a more elaborate, significant, and immaterial nature are to be distinguished in the same way. Thus are the needs of learning on the child level, the adolescent level, and adult level, in all schools and homes adequately met. A college student may be found:

seeking for a new motor fuel
investigating an original theory of types in the human
race

*composing new musical scales to replace those now
fashionable*

using light in interior decoration

meditating on the cause of crime

criticizing a current theory of crime

retraining a delinquent boy

The fact that an activated curriculum can be prepared for those who are children merely foretells the possibilities of new powers and accomplishments for youth. If the basic tasks of life were all learned in childhood, the background would be laid for real learning in youth and maturity. Such an approach would do much to turn secondary schools and colleges into educational institutions in a new sense, of a new type.

From the examination of the numerous goals set forth here and the consideration of the principles developed, it is possible to understand the series of descriptive criteria given. The illustrative goals are all integrated, they possess a wholeness of their own, they possess unity of purposes and function. Furthermore, this unity is in a form which is outwardly observable. Their existence is not theoretical, in the sense in which *ether* or the *fourth dimension* or *heredity* are theoretical. But their existence is actual in the sense in which *bread* is actual and people are actual. They are what real people do with actual things, whether the things are bread as in eating, music as in singing, or ideas as in thinking about eternity. Furthermore, they are all acts, forms of conduct. This is indicated by the presence in almost every case of an *-ing* or its equivalent. It is hard to speak of anything ending in *-ing* which is not done by some person, that is

not an example of individual or group conduct. The goals concerned are, in addition to this, all intrinsically recognizable as goals, as forms of conduct desirable under circumstances which make them necessary or worth while. The fact that they can be named and recognized makes their form particularly desirable for curriculum, for curriculum should appear attractive not to the teacher who administers it, but to the pupil who beholds it. In the last analysis children learn only what they set out to learn. Under normal conditions they will struggle to attain what they recognize as worth while. To permit this struggle for the worth-while is to teach. The teacher cannot force learning. The best he can ever do is to further it.

CURRICULUM MAKING INEVITABLY INVOLVES MORAL JUDGMENT

All curriculum makers are moralists, whether they will or no. The selection of this goal or that is very often an exercise of a moral judgment. The curriculum maker is a moralist who opens up one way of behavior and closes another. By the very way in which he lists his goals he reveals his own philosophy and attitude toward life. For many goals have moral significance, for example:

painting my lips
coming to class on time
helping a backward schoolmate
reading lascivious writing
reading uplifting essays

The moral outlook of the curriculum maker is in fact so much taken for granted that it is never mentioned. But in these days of clouded morals and the fashionableness

of an "unmoral" pose, the actual state of affairs is being lost sight of. The good curriculum is all the curriculum material that is fit to print. Life provides unspoken curriculum goals which had better not be written. The curriculum maker who is not aware of his moral responsibility is a social menace. It is assumed that curriculum goals are good goals, and he who does not know the meaning of the word good (an ignorance which many today profess) had better be no teacher. He has lived, but he has not learned.

PART II
THE NATURE OF KNOWLEDGE

Freedom is good, but so is obedience also.

—PESTALOZZI

CHAPTER VI

THE WORLD AROUND

THE age in which we live has lost a simple understanding of the world around us. But without such an understanding we cannot develop a modern curriculum. In fact our very knowledge has become a hindrance. For so detailed has our knowledge become, and so complex our cosmogonies, that the experience of the average individual has become a maze in which the major and minor experiences of life have become intermingled in confusion. In the lives of many, falsehood and fact have formed the foggy texture of their very being. There are those who view with an even incomprehension a cow and a cracker box, an advertisement and a scriptural quotation. Thousands have lost the power to live in terms of reality. They mistake sensation for pleasure, justice for injustice, money for paper promises, noise for music, neurasthenic miasmas for paintings, the shadows of the screen for the actualities of life. It is from such dullness of comprehension that our mounting insanities are made. In a hopeless attempt to harmonize their daily conflicts, thousands of minds break down and retreat to an inner world, a poor thing but their own. This sealing up of one's own being is insanity, and its basic cause is a confusion between the real and the unreal, the imagined and the actual, the true and the false. Even those of us who escape actual breakdown often live in a confusion of supposed knowl-

edges which is worse than ignorance. Thus is humanity reduced to a pulp and become a fitting prey for the exploitation of the ruthless.

Of the thousands who travel around the world each year, who penetrate to the remote corners of Australia, Korea, and the South Sea Islands, few are capable of seeing what they look at. For the organization of knowledge provided through our schools and our culture has blinded them. They live in a subjective world so different from the outer world that they cannot even see what happens about them. For education suffers from the disease of subjectivity. It has created an abstract world in terms of theories, ideas, and courses which is aloof, unreal, confusing. We live too much in the world of thoughts, the world which we have been taught to see but which is not there.

This must be quite clear to those who will pause to examine the so-called organization of knowledge upon which our education about the world is based. It is in terms of the customary organization of knowledge that our books are written, our knowledge classified, our universities organized.

The organization of knowledge which follows is given at its best as presented with unimpeachable scholarship by Bliss.¹ It is pervaded with the defect of subjectivity without objective reference. Examination will reveal that it has been developed without any recognition of the unity of all phenomena.

It is therefore discrete and unreal. It has not been made by man in carefully organized and controlled fashion. It

¹ Bliss, H. E. *The Organization of Knowledge*. New York: Henry Holt and Co., 1929, p. 302. Reprinted by permission of the author.

has sprung up in patches, to cover whatever new areas men have decided to work in. It is as if the areas of scholarly activity have been discovered as new mines are discovered. Here one finds silver, there copper. Whatever is discovered is mined with arduous toil. But there has been no co-ordination in the work. Such procedure may be suitable for mining. For scientific scholarship it is anathema. It can only produce that cluttered inheritance which we own. Observe the following list of "fields" or "branches" of learning. It is not standardized, for it cannot be determined upon any but arbitrary bases. Its confusions make it appear not as the organization but as the disorganization of knowledge.

What a hodge-podge! What a confusion in the halls of learning! What a shame to the world of scholarship! That after all these centuries men have found no more consistent and ordered understanding of their world is indeed an arraignment of learning before the court of common sense. Certainly we who pose as teachers should be ashamed of our stock in trade. What wonder that hapless youth in a world of persistent and real experience turns away from this subjective world which has so little correspondence with life as it is actually lived. Scholarship needs a house cleaning. We need not this ancient demonstration of futility, for we need nothing less than a new scholarship based on a correspondence between the objective and the subjective worlds.

CLASSIFICATION OF KNOWLEDGE			
PHILOSOPHY	SCIENCE	HISTORY	APPLIED SCIENCES
Principles			
Ontology (Reality)			
Epistemology			
	Philosophy of Science		
	Principles of Science		
	Abstract Sciences and		
	General Methods		
	Science of Order		
	Methodology		
	Logic		
	Mathematics		
	Other general		
	methods:		
	Metrology		
	Statistics		
Philosophy of Nature	Natural Sciences		Applied Metrology
Cosmology	General		Statistics, etc.
	Natural History		

Evolution	Technology
Physical Sciences	Applied Mechanics
Physics	
Mechanics	
Dynamics	
Matter, Energy	
Radiation	
Special Physics	Physical Technology
Chemistry	
Physical and	
Theoretical	
Mineralogy	Petrography
Crystallography	
Analytical and	Chemical Technology
Special Chemistry	Metallurgy

PHILOSOPHY

SCIENCE

Special Natural
Sciences and
Descriptive
Natural
History
Astronomy
Theoretical
Mechanical
Astrophysics

Geology

Physical and
Theoretical
Geography
Physiography
Meteorology

HISTORY

Practical Astronomy

Historical and
Stratigraphical

APPLIED SCIENCES

Economic Geology
Economic Geography

Philosophy of Human Life	<i>Anthropological Sciences</i> Anthropology	History of Mankind	Hygiene
	<i>Psychological Sciences</i> Psychology General and Comparative <i>Individual</i> Anthropological and Racial Social		Medical Science Applied Psychology
	<i>Social Sciences</i> Sociology		Psychiatry
	Ethnology Folklore	Socio-politi- cal History Ethnography Archeology	Education Applied Social Science

PHILOSOPHY	SCIENCE	HISTORY	APPLIED SCIENCES
Philosophy of Religion	Religion	History of Religions, Churches, Cults, etc.	Churchwork Missions Ministry, etc.
Theology Ethics	Mythology Ethics (Science of morals)		Applied Ethics Philanthropy
Political Philosophy	Political Science		Government and Administration Practical Politics Law, Practice, etc.
Philosophy of Law	Jurisprudence Economics	Economic History	Industrial Economics Commerce, Finance Business, etc. Private Economy

Aesthetics, Philosophy of Art

Philosophy
Linguistics

History of
Arts

History of
Languages and
of Literatures

Technology of Arts
Technic of Fine

Arts

Grammar, Rhetoric,
Oratory, and
Criticism
Dramatics

CHAPTER VII

FAREWELL TO "SUBJECTS"

THE same confusion that exists in the current organization of knowledge is reflected in the curriculum and in the organization of schools. In fact the list previously given of the various fields of knowledge might be regarded as a list of college courses. Whatever order or disorder is discovered in the organization of knowledge must be duplicated in courses and curriculums which are based upon it.

In order to clear the way for reform it is absolutely essential that certain principles and methods in common use be given up forever. We must resolutely abandon the principle of logic as a fundamental of organization and classification. This is a hard saying, and is very likely to be misunderstood. Consequently it is necessary to point out that this is no attack upon the use of logic. Logic is useful and desirable in the understanding and control of knowledge. This is no plea for the abandonment of logic. It is merely a plea that we avoid a certain use of logic which does not meet the needs of the times. We must not use logic as a fundamental principle of classification. We must discover a life principle to substitute for it. We must substitute the principle of human activity for the principle of logic as a basic method of organization. It is logic as a fundamental of classification that is under attack, not logic as an aid to thought.

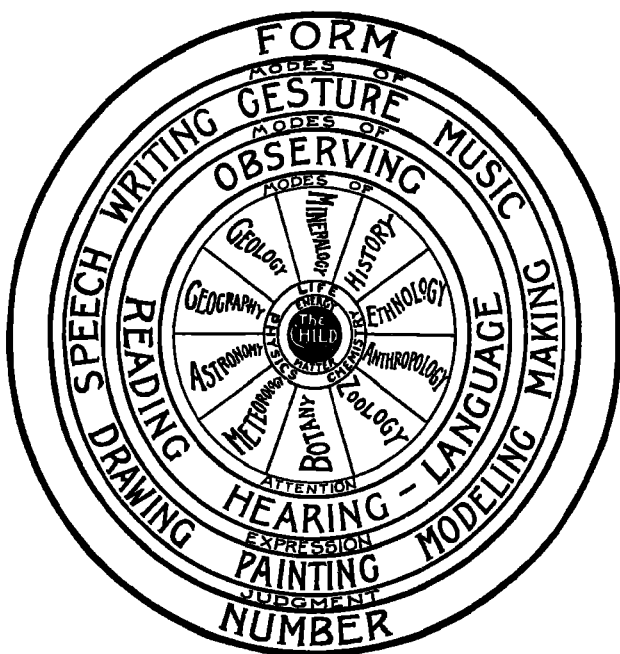


Chart Illustrating the Theory of Concentration

The abandonment of the logical principle as a basis of classification results in drastic changes in the organization of curriculums and of many customary school practices. One of its most striking results is the disappearance of school subjects on elementary, secondary, and college level. Subjects are the bony structure of current school organization. But subjects must go. Organization of school life and organization of curriculum in terms of subjects is completely outmoded. We have been too long controlled by a basic division of all that pertains to school life in terms of such divisions as geography, science, art, mathematics, history. Francis W. Parker led the attack against subjects in America, without quite realizing the full implications of his leadership. He presented an analysis which has not hitherto been superseded. It may be observed in the accompanying diagram taken from his *Talks on Pedagogics*.¹ With clear perspicacity Colonel Parker placed the child in the midst of things. Radiating out from the child as a center were the school subjects. Thus Parker was unable to follow out the implications of his own revolution. He could not drop subjects, for the times would not permit it. So it was with Comenius, whose ideas implied the abandonment of Latin for the vernacular. He was unable to abandon what the times would not release him from. Thus Parker did not abandon subjects but retained and reinterpreted them. According to his doctrine of concentration, the subjects were to play upon the learner in unified and functional fashion. In his own mind Parker was already clothing these subjects with

¹ Parker, Francis W. *Talks on Pedagogics*. Reissued by The John Day Co., N. Y., 1937.

new meaning in terms of activity. But he did not realize fully the implications of his own work. From his day on the notion of curriculum has languished. Just as the followers of Comenius ultimately gave up Latin, so the followers of Parker are forced to give up subjects as the basis of classification. Only when they have done so will the dilemma of curriculum be solved. For organization in terms of subjects has been so woven into the warp and woof of every aspect of education that the whole must be unraveled.

It is difficult to realize the extensive ramifications of the logical organization of subjects and subject matter into the life of our schools. Subject organization has affected teaching on every level for millenniums. Today it is prevalent in the organization of elementary schools, secondary schools, and colleges. It is the very master of the university. Consider some of its implications in school life. In the first place, it is the system of reference in programming. It is king of the timetable. The elementary school is, throughout practically every country of the world, organized into periods of the day on the basis of school subjects. High school timetables are similarly organized.

In the second place, the materials of teaching are organized in terms of subjects. I have very recently observed this state of affairs at first hand in many countries of the world. On first hand experience I can definitely state that this mode of organization is world-wide, for I have seen it in the classrooms of England, France, Germany, Egypt, Ceylon, India, China, Japan, and Canada. Roughly speaking, the world-wide organization always resembles this pattern.

Elementary School

Reading
Writing
Arithmetic
Geography
History
Science
Art

Secondary School

Vernacular Language
Foreign Language
Mathematics
Science
History
Civics

College

Vernacular Language
Foreign Language
Mathematics
Science
History
Psychology

This is the universal language of scholarship in the present age throughout the world in every country. And a feeble language it is for the needs of an awakening world. The very organization of schools—administrative, instructional and curricular—has been so delineated, so crystallized. Education is organized in terms not of living but of logically developed subjects.

The effect on *method* has been far-reaching. The very way in which the teacher taught was determined in terms of the subject matter involved. The teacher did not think, "Who is learning this?" He thought, "What subject matter am I teaching? Is it arithmetic to be brushed up? I will use a drill lesson. Is it history to be expounded? I will use an Herbartian approach. Is it a poem to be enjoyed? I will use an appreciation lesson." So method was organized in terms of subjects, and teachers were concerned with *what* rather than *whom* when they were teaching.

The *tools* of education were similarly arranged. The contracts of the Dalton Plan were to be given out to the pupils in some such subjects as geography, French, history, mathematics. The textbooks were written one in ancient, another in modern, history. The teachers-in-training were taught lesson plans for lessons in Specific Gravity, the War of the Roses, or the Care of the Eyes. It was all subjects and sub-subjects. Learning thus became the mastery of subject matter, and examinations the scheme to enforce this unnatural plan. Without examinations the whole age-old system could never stand, until examinations became the fetish which teachers worshiped and around which their complex of dignity and absolutism revolved. Examinations became the great mediator between youth and society. Examinations became the last resting place of ineptitude, pride, and circumlocutory scholarship. Examinations became a device to compel the system to work by main force. Whether teachers taught or students learned was beside the point. Examinations atoned for all.

Curriculum thus came under the awful sway. Curriculum was written down in the form of a series of volumes

called courses of study. Curriculum = Course of Study (Arithmetic) + Course of Study (Geography) + Course of Study (History). So it was that the field of curriculum, naturally enough, became grounded in an outlook on education which found universal acceptance. Under each subject was its sub-subject, and under each sub-subject that subject matter which was subjected to it. The basis of curriculum became subject matter goals *in extenso, ad infinitum*. Such was a typical curriculum. Varied and modified by one device or another and worked into a heterogeneous confusion which finally vanished in the very denial of curriculum itself, this was yet the basis of all. Curriculum and Subjects were synonymous.

All this must be changed. Subjects must be abandoned, and there must be a substitute for them.² Old principles and outlooks die hard. Once we give them up completely, however, the road to new progress is open. So the abandonment of subject organization points the way to the reorganization of knowledge. Without such a reorganization of knowledge there can be no new curriculum. Organized knowledge of the world is a preliminary to an organized curriculum. There must be a new basic organization³ of knowledge in terms of the fact of personality and the principle of activity.

² The author realizes that subjects may still remain for the study of antiquarians, and will long remain as convenient concepts, as the Seven Liberal Arts have remained in textbooks in the history of education.

³ The trouble is not with organization, which is always essential, but with the obsolescence of the present organization.

CHAPTER VIII

SEEING THE WORLD

NO less drastic a step than the reorganization of knowledge is adequate to the needs of a new culture. We must break with the errors of the past or be swept away by them. Halting attempts to refurbish the old knowledge, to serve it up garnished by the piquant style of popular journalism, are not enough. To brighten it with attractive lithographs or enliven it with modern book designs and orange dust covers falls short of the mark. What is needed today is real change—change which gets down to the roots of things; change which changes things, disturbs, upsets, and rights them again. The reorganization of knowledge should crack up the old patterns, painful as this may be, and genuinely vitalize the new. There will be no new world unless we see the world anew.

SEEING THE WORLD

The simplest method of seeing the world is to look at it. Not to read about it. Not to think about it. Not to listen to lectures about it, not to dissect or analyze it, but to look at it. In the words of Floyd McKnight:¹

“O, till you see

The moving, Manoeuvring master,

The many masters of men,

The sowers of dream and disaster,

¹ Floyd McKnight, *Buildings*. The Arts and Press Guild, New York, p. 17.

The princes of sword and pen,
The seekers for self, the builders
Of temples of guilders and yen,
The masters who battle without and within
To die or to win;
O, till you see—and you can see them if you will,—
Until then you walk in the dark, listless and self-
blinded;
And the buildings of marble and steel that you imagine
Are only imaginings,
The men and women who move down the beautiful
corridors are shadows marching
Like a dim shadow procession before closed eyelids
and blind eyes,
And the thoughts of these so-called practical ones are
phantasms of an evening mist, dreamy and unreal.
O, insensitiveness and sickening resignation are in the
land . . .
Until you see!"

There is safety in a return to common observation and a simple understanding of life. A simple pattern, objectively verifiable in terms of universal experience, must become the basis for the reorganization of knowledge, and consequently the basis of new curriculum. Such a simple pattern may be discovered if we begin with a unified notion of the stuff of which and by which all things consist. Such a fundamental is to be discovered in Energy. The world is obviously supported by energy in time and space. According to the new physics, the earth is energy since matter is energy become so. This state of affairs is symbolized by the fact that enough sunlight falls upon

the United States alone every day to generate nine thousand billion ($9000 \times 1,000,000,000$) horsepower of physical energy. Beginning thus with energy, it is a simple thing to observe what it does, what it performs, through what beings it acts. For energy makes alive, and that which is alive is in action. Never dead. Never inert. Never passive. But active, on the move. To be so is to be a being. To be is to be alive.

In every country, every individual may see for himself the four major types of active beings alive in the world. These are the Earthy Substances, the Plants, the Animals and Men themselves. To be unable to see these is to be blind indeed. To observe them clearly may be the beginning of knowledge. For the world around us presents itself to us in these four energized modes of action, observable by every person, verifiable by every child. If correctly conceived of in their active sense, they offer a clear basis for the organization of one's understanding of the world. They provide a good beginning place for the work of organizing those aspects of curriculum which are dictated by the environment, by the world in which we live.

IDENTIFICATION IN TERMS OF CENTRAL TENDENCY

There is a current mode of thought which may make it difficult for some observers to recognize the four fundamental modes of being. This mode of thought is the mode of subjectivity. According to this point of view, all classification and all organization is completely subjective. The individual may build what castles he will, and may classify the world into whatever classifications he cares to,

independent of any outside check or any objective reference. Thus the continents of the world might be redivided in a new way. Instead of the customary Europe, Asia, Africa, North and South America, and Australia, any man who chooses may say to himself, "Europe is not separate from Asia but runs gradually into it, so that it is not possible to observe where Europe stops and Asia begins. I shall now make a new division and divide Europe from Asia by a straight line running north and south through Berlin. That to the east I shall call Europe, that to the west, Asia." From then on all people whom this radical reapportioner of the continents could persuade to agree with him would accept the new method of naming. Since the earlier naming was made by man without geographical consideration, it may be rejected by other men and a new subjective classification substituted among those who agree to the change. It would, however, be a dull sort of change, neither functional nor valuable because it lacks objective reference. It is based on a personal determination established without relation to real difference outside the person. False concepts of difference thus arise which make the life of the person out of touch with the life of the actual world.

Elevating such subjective methods of naming to the status of philosophy, some subjectivists are teaching that whatever classification is willed by the volition of any person becomes thereby a valid fact, since it is a volitional statement. Thus we could divide the world into twenty-five or seventy-five continents if we wished to do so, according to any ordered or haphazard plan we might care to use. According to the subjectivists, these classifications would be valid because willed by the persons concerned.

So also in philosophy they believe that philosophies may be spun like spiders' webs subjectively without objective reference. But such subjective philosophies if accepted as fact instead of fancy produce insanities. They divide the real world outside the man from the world inside his own being. He accepts conflict to his own hurt, just as a child taught that fairy tales are true sometimes loses track of reality and tells what appear as lies in the practical world.

The actual divisions which are current in the world of learning today suffer from this disease of subjectivism without objective reference. Such subjectivism prevents the true seeing and knowing of the world around. It is valid as art, which is a subjective reapportioning. Science that is as subjective as art is bad science. Art which is divorced from true science in its original reference is delusional and pathological.

The actual divisions and classifications which are current in the world of learning today suffer from this disease of subjectivity without objective reference. The organization of knowledge which is here proposed proceeds from a fundamental unity in the concept of objectively observed energy expressing itself through four modes of being: the earths, the plants, the animals, and men. But the generally current organization of knowledge proceeds through no such fundamental concept. It has been made without true recognition of the unity of all phenomena.

The simplicity of the analysis of the surrounding world into its four modes of being may be misleading. One should not make the mistake of thinking it customary. This is a temptation, for the words used are common words. But as they are used here they express uncommon concepts. One should not fall into the error of thinking

that any such true basis of understanding prevails among us, either in the general aspects of our inherited culture, in the organization of our knowledge, in the learning of our schools, or in common conversation itself. For the concepts as presented here differ in two significant respects from common Western modes of thought. In the first place, the active and dynamic mode of the concepts is not customary in our ways of thinking or acting. We think of stones as inert and lifeless. Of plants, animals, and men as a continuous series of beings, sharing the one nature and fulfilling an analogous life and destiny. The energized active nature of the concepts as presented here signify that all material beings are alive and active. Yet at the same time it postulates a qualitative difference in the life of each group. Each is functionally separate. These distinctions are sharply counter to our common way of viewing the world. The terms in which the analysis is made violate the accepted tenets of our "Aristotelian" culture. Thus Shakespeare would permit Hamlet that grand anticlimax:

"What a piece of work is man! How noble in reason!
how infinite in faculty! in form and moving how express and admirable! in action, how like an angel! in apprehension how like a god! the beauty of the world! the paragon of animals."

The prevailing cultural outlook is also signified by the ideology which operates in that simple child's game which is taught to all our children. It divides all things into "three kingdoms": animal, vegetable, and mineral. This is the classification which is taught to all children who are brought up in our Western lands. But it differs

fundamentally from the scheme suggested here. It excludes a whole class, and the most important class of all: human beings. On paper this seems a small thing. But on this distinction hinge some of the deepest things of life. Again, the nature of these old concepts is passive. Animals and vegetables are comparatively passive groups, not interacting agencies. Lifelessness is assumed, generally taught, and dramatized in our private lives and in our social structure. The very warp and woof of our culture is spun of a series of basic concepts of structure and difference which is contrary to the nature of life. Worlds built of the old and of these new building stones must be very different worlds indeed.

CHAPTER IX

THE SCIENCES

IF the sciences are to express that internal orderliness which is characterized by all the world around us, they must follow the fundamental law of unity moving into diversity. This ancient law, which has pervaded the highest forms of ancient civilization in India, Palestine, and China, has been in the background of the world's wisdom for ages. It is nowhere more succinctly expressed than in the ancient Chinese diagram known as the Pa Kwa.



In the center of this diagram fundamental unity is depicted by the single cell or circle. The germinating of the whole by means of the two principles of the *Yang* or

male, and the *Yin* or female is indicated by the two sperm-like figures within the circle. Circular movement and interpenetration symbolize action. Action is followed by the division of the whole into an orderly series of parts which are symbolized by the chromosomelike diagrams radiating out from the center. Thus is succinctly stated in symbolic form the law of unity as primary, and an ordered diversity born through activity. This statement is merely an observation of a natural fact.

In order to preserve this active and dynamic characteristic of learning, knowledge must be postulated in some single or unified form from which all the sciences are derived. Consequently, it is proposed that the fundamental science of energetics become the unified beginning point for the approach to true knowledge of the universe. From this fundamental science of energetics may be derived the four sub-branches of knowledge expressing the four modes of action with which energy clothes itself in living. Thus fundamental science may be ordered as follows:

Science of Energetics	{	Science of Earth Beings
		Science of Plant Beings
		Science of Animal Beings
		Science of Human Beings

Each of these branches of knowledge must be considered separately.

THE FUNDAMENTAL SCIENCE OF ENERGETICS

It is perfectly clear in terms of what we can simply observe, and in terms of all that good scholarship and history can teach us, that the world is driven by force or

energy. This is the basic material fact. We live in a world which is energy-driven. In this concept lie the very bases of material reality. We are deeply concerned with its recognition, identification, and methods of performance. We are getting today new glimpses of the universe in terms of energy. Leading scientists of our present world are working incessantly on the investigation of energy. It is estimated that the supply of heat radiated by the sun in one second is equivalent to that secured by the burning of 10,000,000,000,000,000 (ten million billion) tons of coal. The sun's mass, however, is only 2,000,000,000,000,000,000,000,000,000 (2,000 million billion, billion) tons. It would consequently last only 6,465 years. Since scientists estimate that it has already lasted much longer, they are faced with the dilemma of accounting for its longer life in terms of an energy release different from that which we know as burning on earth. Very recently Professor Hans Bethe of Cornell University has advanced a theory which is being widely accepted concerning the release of sun energy. It postulates that the energy of the sun is atomic energy. Of such it is estimated that a single cube of sugar contains enough to propel the Queen Mary across the Atlantic and back again. Atom smashing takes place in the sun. In the collision of carbon and hydrogen atoms both are annihilated. Energy is released, but by a redistribution of forces in the end carbon is reborn.¹ The process

¹ Technically the process is described as follows: In the collision of hydrogen and carbon atoms, which takes place in the sun, both are annihilated. The core of the hydrogen atom, which consists of one proton, pierces the core of the carbon atom. This has six protons in its nucleus. It forms another element, nitrogen, which has seven protons in its core. The newly born nitrogen atom is now bombarded by a nitrogen nucleus. Again new matter is created. When four hydrogen atoms have entered the nucleus of carbon they split off. They join with two electrons and form helium. The original carbon nucleus

is pyrotechnical indeed, but by answering the question of the seemingly inexhaustible energy of the sun the scientist has posed another. Scientists may stop short of the truth while on the path of it. But the common man must ask questions which involve a more ultimate answer to the energy source of all.

We are being taught that all that we behold on every hand is materialized energy. Energy is the very fundamental matter, and this world is energy, energy-driven through time and space. We dare not miss the realization of the fact that all this is symbolic. For physical energy must be but a corollary of spiritual energy—energy which is more ultimate, more real, more original. Spiritually man is concerned with the original energy out of which all material manifestation proceeds. He is concerned with the Source of Energy and his personal relation to such as a spiritual whole. He is concerned with recognition and identification. There is no fleeing this problem, for wherever one may flee he finds this problem at his destination. It is a problem which life asks over and over again with unremitting zeal until the individual has found its answer. It is a veritable "Hound of Heaven."

The world we know exhibits the continual drama of the interrelationships of spiritual and material energy. Spiritual and material energy may co-operate to build the world, or material energy may co-operate with the spiritual to build the world and humanity, or material energy may pit itself against the spiritual and bring about de-

thus comes back to life as in the beginning of the process. On earth we burn the outside of the carbon atom. The sun burns its nucleus. Thus the sun "eats its carbon and has it too." But such burning requires a temperature of about ten million degrees. On earth coal lights at a mere few hundred. (Abstracted from an article in the *New York Times*, Dec. 18, 1938, pp. 1 and 12.)

struction. This is the eternal relationship between the *Yin* and the *Yang* of ancient Chinese philosophy. In this co-operation or conflict lies the secret of construction and destruction. Here lies the basis of war or peace in the individual and in the world. In the individual in whom spiritual and material co-operate, healthy and creative living results. In individuals in whom the struggle is dormant, life proceeds in monotonous nothingness until the individual clutters the world with his seemingly useless presence no longer. This is the typical state of the half dead-and-alive Westerner of today. In the individual in whom material energy masters the spiritual and puts it down, great enemies of the people are found. Such human beings by the use of material forces precipitate persecutions, bloody purges, monetary systems of exploitation, forced labor in one form or another, economic or spiritual slavery, and war. War, with its modern ruthlessness, is portraying barbarity a hundred-fold greater than that of any earlier day. Witness the merciless bombing of civilians from the air both in Spain and in China, one vast demonstration of the material used against the spiritual. Here physical energy triumphs to the destruction of humanity. This is the nature of war.

To a clear recognition and understanding of the nature of spiritual and material energy, men should devote themselves with untiring zeal. If ever there was a time when men could not afford to observe the forces at work in the world with a dishonest eye it is today. Forces are rampant. They rend and tear us apart. The world is run wild with energy out of control. No true man can afford to allow his spiritual or material prejudices to blind him. He must

put aside pettiness and face the world with an honesty beyond that of today. The time has come to see with purity of sight, to abase ourselves before truth, to stand humbly in the light of the sun.

CHAPTER X

THE SECONDARY OR DERIVED SCIENCES

FOLLOWING on from the fundamental science of Energetics are the subsidiary or derived sciences. Each of these derives its fundamental nature from the basic science of Energetics. Yet each is a development of one special aspect of living. Each considers the living of a type of being which acts in its own specific fashion, which is functionally different from the others. Each performs work which the others cannot possibly perform. Each is unique in the kind of contribution which it makes to the total panorama of activity on the earth. Each is an interlocking part of the whole pageant of life. Without either, nothing would exist as it is on the earth today. All point to the human level and find their only significant expression through man.

SCIENCE OF EARTH BEINGS

Earth Beings are those natural phenomena which in a narrow sense may be called earths. In the wider sense indicated here they include all earths, rocks, and metallic elements in all their various modes of performance—solid, liquid, and gaseous. For example, water, air, salt, sand, and gold. It is customary to overlook the fact that these earth beings are beings at all. We are accustomed to say that they are not alive. If by so saying we mean that they are not alive as human beings are alive, or even as animals

or plants are alive, we are quite correct. They have not the sentient powers which we observe in other beings. Yet in a sense they are alive. They are expressions of energy in active performance. Those who doubt this should watch the formation of frost flowers on the windowpane some icy day, or observe the formation of crystals in the laboratory. These seemingly nonsentient beings are yet active and changing. To be active and changing is to be alive. If we make the common mistake of forgetting to observe the whole world in constant action, our concepts become static. We pigeonhole and classify to our hearts' content. But our knowledge is false knowledge because it tells the story of a dead world.

The active living nature of the earth beings will become obvious if we observe them accurately and ask the proper questions about them. "Speak to the earth and it shall teach thee."

All science must be approached in terms of performance, interpreted in relation to an individual man or to men. The question we must ask with respect to any type of being is, "What is it doing?" What do the earths do? What particularly do they do to and for men? What have they done? What can they be made to do? For these expressions of energy which are made through the earths can be permitted by man to lie fallow. The Sakai, a primitive tribe which I visited in Malaya, neither mine nor cultivate to any extent. The earths may work for man constructively or destructively, to a limited or to their full extent. To understand earth performance is to bring earth into the use of man.

THE MODES OF ACTIVITY OF EARTH BEINGS

The earths may be regarded as expressing themselves in four modes of action: capturing force, expressing force, changing form, and carrying force. The absence of names for these processes indicates the unfamiliarity of the concepts involved.

By means of their first mode of activity the earths are able to *Capture and Embody in material form Basic Energy*. The earth, as it were, breathes energy. They are capable of figuratively breathing in force from the universe and from whatever other systems that force is available. Whether that force arrives in the form of cosmic rays or little-understood creative forces, the earths, the rocks, the elements are the material expressions of energy which they embody. This is the teaching of modern physics and the observation of everyday life. Without this power of capturing force possessed by the earths, there could be no material medium, no world, no earth, no fundamental material substance from which all other beings can form themselves. The first act of living in a material medium is performed by the earths, which receive and embody energy from without and form it into those familiar types of matter which we all know so well. The earths perform the first act in the drama of life in the material world.

In the second place the earths *Express Force*. This they do in terms of structure and form. The basic energy captured by matter is expressed in such varied elements as gold, iron, and iridium; and in such diverse crystalline

forms as those of diamonds and copper sulphate. A study of crystalline forms such as that which is exhibited in the London Museum of Natural History must be a revelation to those who have not thoroughly comprehended the precision and mathematical regularity involved in crystal formation. If studied from the point of view of its bearing on human life, crystallography alone would bring much enlightenment to the searcher for true knowledge.

The third mode of activity possessed by the earths is that of *Changing their own Form*. Chemistry and physics are replete with examples. The earths, under different degrees of temperature, pass from solid to liquid, liquid to gas, and back again. Ice, water, and steam provide the most familiar examples, and serve to indicate the way in which this common activity of ordinary substances enters into the warp and woof of our daily life. A flurry of snow can throw a great city into confusion and modify the daily life of millions, while the floods caused by a spring thaw can dispossess thousands and ruin whole communities. The activities of the earthy substances in their changes have the most direct bearing upon the life of human beings.

The fourth mode of activity of the earths is that of *Carrying Force*. They carry the force of cohesion, which fastens together the rocks and hills into an inner integrity. Electricity runs about in our copper wires, while the gaseous air carries gross physical sounds by mere propulsion of particles. Without this power of the earth substances to transmit and carry forces, no simple operation in the physical world could be carried out, not even the slamming of a door.

It is important to realize, therefore, the modes of activity of earthy substances and to realize them clearly.

The Earth Beings act by	{	Capturing energy	Energizing
		Expressing force	Forming
		Changing form	Metamorphosing
		Carrying force	Conducting

Without these powers of the earthy substances, machines would be impossible. For practically all machines, actually all machines which are made of metal, are humanly designed earths driven by force. The activities of the earths are the very basic qualities required for machines.

What do the earths do for man? In the first place they provide him with a medium for his existence. The material mode is that in which the human being forms himself. The process, however, is a complex one. It depends upon the fact that the earths provide man with the basic materials by means of which he lives. The earthy substances themselves, such as mud and rocks, he uses to build his houses; and minerals are mined for ten thousand varied purposes. The soil grows plants and trees for his use. The bamboo alone produces materials adapted to all men's common needs. It gives the poles of which the houses of thousands of Chinese are built, it provides them with bamboo shoots for food, and from it may be made many utensils such as chopsticks and bowls. I have heard a similar claim made for the cocoanut palm in Ceylon. All comes from the dust of the earth into which is breathed the breath of life. Thus it is clear that true knowledge of the earths is absolutely essential for the well-being of man. The more we know of Earth Science, the better may we live in a material world.

SCIENCE OF PLANT BEINGS

Plants are another of the four types of energy transformers. They receive energy from the universe, use it in the processes of their own life, and redistribute and make it available to other beings. In this performance scientific men are interested. By a better understanding of it, men can bring it into their own service.

Consequently, an approach to the study of the performance of plants must be made in a way similar to that used in the study of the earths. The question must be asked, "What do plants do?" What, particularly, do plants do for men? What is their function, what is the central tendency of their nature? Such a study of central tendency enables us to identify plants in the world around us. We find them in the trees, the grasses, the mushrooms and mosses, the flowers of field and garden. In every clime, from tropical to arctic, and in every locality, vegetation is a constant companion of man. As a whole and as a class, they ornament the earth and provide men with psychological rest and retreat. They offer endless materials for food, clothing, and shelter, and exhibit a beneficent world.

THE MODES OF ACTIVITY OF PLANT BEINGS

Plants perform two types of work. They transform energy in two ways. Their modes of activity are *Transforming Light* and *Transforming Earths*. By means of their first mode of activity, the plants transform energy directly from the sun. This process has been called the most important chemical reaction in the world— $n\text{CO}_2 + n\text{H}_2\text{O} = (\text{CH}_2\text{O})_n + n\text{O}_2$. It is well recognized

under the name of photosynthesis, and is discussed in practically every textbook on biology. It is not yet fully understood, but new light is being thrown on it constantly by new investigations. It is known that the light pouring on the leaf acts as an energizer, something like an electric current. The energy thus received from the sun, through the agency of chlorophyll in the leaf, makes use of the new energy to carry on its life processes and build itself into a plant. The second mode of activity, Transforming Earths, exhibits to the full the amazing and unique contribution of plants to the general operation of the world. By their work the earths, which are inedible by man, are transformed into newly organized forms of energy which are available for use. Briefly, plants make the earths edible by animals and man. They are thus an indispensable link in the life cycle of the universe. Plants are surrounded by soil, air, and water. They are provided with some form of special equipment which enables them to transform elements from these three sources to meet their own life needs. The root tips take in soluble substances from the soil, while the leaves, by means of *stomata*, usually on the under side of the leaf, breathe in through these "mouths" carbon dioxide from the air. This provides the carbon structure so common in plants.

MODES OF ACTIVITY OF THE PLANTS

- Plant Beings act by
- | | |
|---|---|
| { | 1. Transforming Light—Photo-synthesizing. |
| | 2. Transforming Earths—Synthesizing. |

Contemporary systems classify plants by their external characteristics. This is a static and nonfunctional method. The methods of classification in the contemporary sciences of geology and of biology are inadequate to the needs of the day. All nature should be reclassified according to new principles, in spite of the colossal work involved in such an undertaking. Functional classification is the only form of classification which will actually make possible a true understanding of nature and its effects upon man. Classification in terms of behavior would revolutionize our understanding of the whole field of biology and of genetics. It would have drastic effect in modifying the common concept of evolution and would throw new light on the development and breeding of living things. These are but mere examples of a coming change too sweeping to realize. Here is a completely new realm of investigation which provides fruitful toil for a generation of scholars. A wide study of all living beings in terms of their individual and group functions is urgently necessary if nature is to come under the full sway of men. On this path any civilization will progress. On any other it will perish.

What is the functional behavior of trees? Of a cherry tree, of a maple tree, of a tung oil tree? What services do they perform for men in the varied activities about the globe? In America, in Italy, in China? What is the work of root crops? Of grasses? What is the relation of such things to the food problem, the problem of soil conservation? Such questions must inevitably receive attention as a practical application of the functional study of plants. But beyond these superficial matters a deeper understanding of nature as a demonstration of truth will come to the philosopher and to the everyday man.

SCIENCE OF ANIMAL BEINGS

Animals express energy in their own distinctive fashion. Their prevailing mode of activity is to transform energy and make it available to man. This they do by two forms of activity: by *Transforming Plant Energy* and by *Working*. Animals live by eating plants and other animals. They thus act as a secondary form of food for men. They provide such edibles as eggs and milk, which provide energy for men. But their distinctive mode of activity is that of *Working*. Animals work continually for men, and sometimes, unless brought under control, against men. Animals are the servants of man. From the human point of view, if this were not true they would be mere encumbrances of the face of the globe with no value except that of playthings.

The horse is thoroughly typical of the working function of the animals. "Hast thou given the horse strength? Hast thou clothed his neck with thunder?" When brought into subjection to man, the horse acts as an engine which has provided countless generations with force for the plow and strength for the wagon. It is a simple matter to observe that common animals perform some kind of work which may be harnessed for the use of man. Each possesses some form of behavior which can be pressed into service. Insects pollinate the plants; the earthworms, by their passage through the soil, lighten it and pulverize it as they grind it through their very bodies. Without them farming would be impossible. Even the tiny insects work like myrmidons on the waste matter that strews the ground and make their contribution toward our health by reducing it again to mother earth. Unfortunately, however, we

still do not understand in orderly fashion the true nature and behavior of all the animals, birds, fish, and insects. We display them in our aquariums or museums, not as the functional servants of man, but as mere pretty toys for the entertainment of a sated and perspiring humanity. Blind eyes gaze blindly on what men fail even yet to understand: the functional contribution of all animal beings to the life of man. Men slaughter their helpmeets and permit whole tribes of them to vanish from the earth. Their bones mock men in sad museums.

MODES OF ACTIVITY OF THE ANIMALS

Animals Beings act by { 1. Transforming plant energy
—Anabolizing
2. Working—Working

Men have almost entirely overlooked the lessons which the animal world continually teaches to man. The animals provide an age-old demonstration of a mode of living which should be a constant warning to the human beings who observe it. Animals give a perfect demonstration of how not to live. They are a constant reminder that men should not live as animals must. For animals live to the material life alone. Their whole existence is one continuous struggle for food and for the type of domicile which suits their preferences. They struggle only for that which maintains life at a constant level, but they never struggle to improve it. They do not deliver themselves from the imminent dangers of the life around them. Furthermore, they prey on others and are themselves preyed upon. Life is internecine combat, and the survival of the strongest

and the most ruthless is the way of life. They fight incessantly, and war is the natural law of the jungle. They spend their lives in slavery to man, and for their wage they have only the pittance of food and existence. They work without rewards for whoever can harness them, and they cannot free themselves from this incessant serfdom. To be such is to be an animal. We do not blame them, for to act so for an animal involves no blame. But for human beings this is vile. It is the world, the flesh, and the devil. Animals provide men with a constant demonstration of the fact that men should not live by bread alone. To be materialistic is to be bestial.

THE SCIENCE OF HUMAN BEINGS

The highest material expression of energy which we can observe is man. As the best equipped of all beings, he stands at the head of all.¹ The world has been placed in the hands of man for better or worse. Whatever it is, man has made it. For of all beings man is the only being capable of making changes in the world around. He only can advance beyond what animals can accomplish through instinct. He only can add to the energy-formed and energy-created world in terms of creativity. He only can add to creation. The animals and plants and the material world come under his care. Even those human beings

¹ Some sentimentalists pretend that this is mere interpretation from the man's point of view. From the point of view of animals this would not be so. This absurd notion is obviously false, for what is described here is observable fact, and could be observed as fact by plants or animals had they such powers of observation. The dominant position of man is not a theory, but an observable fact true for all beings. These sentimentalists seldom realize that by eating meat they allow their action to belie their objection. For he who eats meat exercises the power of life and death over animals, which he has no moral right to do unless he believes in his own dominance as a fact, rather than as a point of view.

over whom any man finds himself directly placed depend for their well-being on him. All this is a matter of observable fact. It is not theory. Rather is it a description of objectively observable experience verifiable by all, and capable of dispute only at the expense of violating the ordinary observational powers possessed by all men. Only ignorance or scientific dishonesty make it possible to deny the place of dominance man holds in the material world.

For while the human being is, like other beings, an energy transformer, human beings present this unique difference. While the energy transformations of lower beings are all directed toward the life of the human who reigns in the material world, the energy transformations of humanity are for the purposes of humanity itself. Man is the cornerstone of creation. All the world processes find their summation and their consummation in him. He is free indeed with the freedom of a lord of creation. All the earth is his dominion, and he reigns wherever he exercises his regal prerogatives. When he troubles himself with work and learning, he is able to build a brilliant civilization out of the building stones of the universe. His labors are for himself and his fellow men. If he raises his hand like Cain against his brother, wars and massacres prevail on the face of the earth. If he turns himself to the arts of peace, he can bring in a Heaven on Earth.

THE MODES OF ACTIVITY OF HUMAN BEINGS

Human beings carry on their lives in ten modes of functional activity. As the discussion of these various

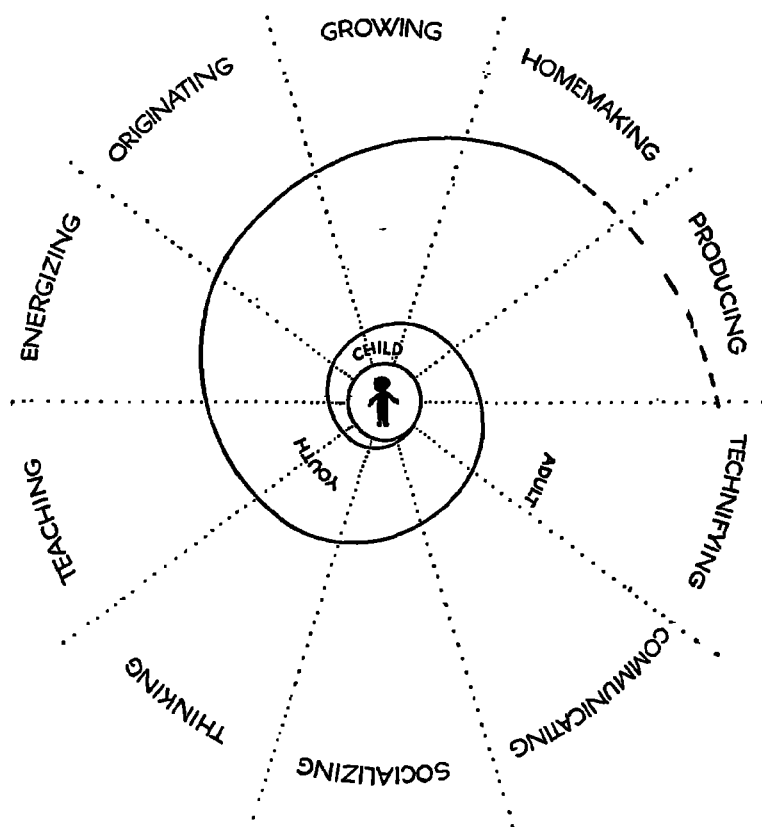
modes of living is a serious and important matter, they are given here first in the form of a list and then in more satisfactory form in a diagram. The discussion of each follows in another chapter. The diagram presents these modes of activity in the more useful form, and it should be studied with this in mind. The author asks to be excused for a certain liberty with words which seems essential in the light of the necessity of using one word only for each mode, and of maintaining the active ending in *-ing*. Unfortunately the words themselves have been commonly used in a way which obscures their special nature when applied to human beings alone rather than to all living beings. Consequently the reader is asked to follow the explanation of each mode of activity, keeping constantly in mind the fact that if properly understood the function is distinctively human. Each function is in

MODES OF ACTIVITY OF HUMAN BEINGS

- | | |
|---|------------------|
| The Human Being ²
acts by | 1. Growing |
| | 2. Homemaking |
| | 3. Producing |
| | 4. Technifying |
| | 5. Communicating |
| | 6. Socializing |
| | 7. Thinking |
| | 8. Teaching |
| | 9. Energizing |
| | 10. Originating |

² This list is modified from the presentation of a similar list in the author's earlier work, *The New Culture*. The John Day Co., 1937. In that book in chapter xi the derivation of this basic series from its philosophic background is indicated.

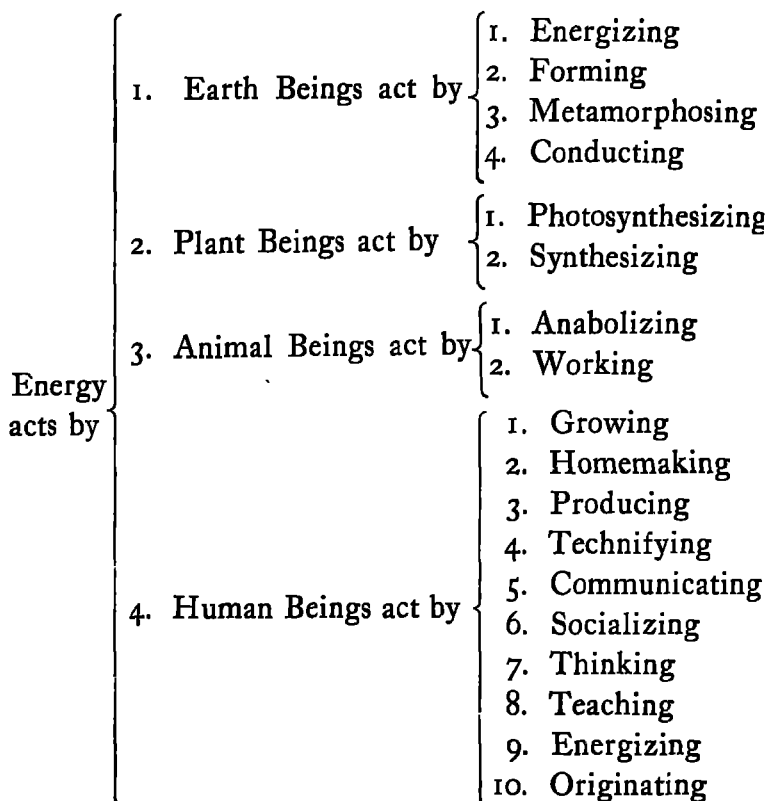
its true essence thoroughly human. In cases where this is not realized the cause is often the acceptance of an understanding of the particular mode of activity concerned in a false, underdeveloped, or incomplete form. Until each



Modes of Human Activity

This diagram is rotatory. It shows the way in which the living person at the center moves outward as indicated by the spiral in ever-increasing maturity with respect to the various modes of living. This diagram is basically useful in the process of curriculum construction. It should be kept before curriculum workers as a structural guide to what they are doing.

CHART OF REORGANIZED KNOWLEDGE
THE FIVE SCIENCES



of these modes of activity is freed from its animal analogy, it lingers in our ideology as a dead weight, which hinders human development. When functionally conceived, each of these modes of activity presents us with a vision of a new world, a world most unfamiliarly human.

CHAPTER XI

TEN MODES OF HUMAN ACTIVITY

THE foregoing discussion of the reorganization of knowledge is properly a treatise in itself. It has been given here as a necessary preliminary to the consideration of the problems of curriculum. It is now proposed that the ten modes of human activity become the basis of a reorganized curriculum throughout the life of the individual. It cannot be too clearly understood, therefore, that the ten modes of human activity should be used as a substitute for the organization of life and education in terms of the well-known school subjects. If this suggestion be followed the teacher alone in her class will give up the older subject-matter system. Schools from kindergarten to university will make a basic reorganization of their structure. They will abandon as a basic structure the Aristotelian system of subjects, and substitute for it this basic series of modes of acting.

This organization is the result of long and careful survey. It has been based on experience, observation, and the consideration of examples and cases, upon the examination of life. I recommend that it be used as it stands for the reorganization of education of children, adolescents, youths, and adults, individually and in groups. It is a basic *schema* for the reorganization of education in a form which will harmonize with the active principles of Come-

nius, Pestalozzi, Froebel, Herbart, Francis W. Parker, and C. Hanford Henderson.

A brief survey of these interweaving and interdependent aspects of living will not merely indicate what each one means in the life of the individual. It will show the way in which they intermingle and mutually support one another in a harmonious and single mode of personal acting.

MODE 1. GROWING¹ (Properly Human Growing)

Growing on the human level must be sharply distinguished from mere plant or animal growing. For in a certain sense real human growing begins where animal growing leaves off. In fact growing may at first not seem to be a matter of learning. This is owing to the lingering of old-fashioned concepts which conceive of learning as acquiring, rather than as acting.

In its grosser sense growing concerns itself with many affairs, such as eating, sleeping, and the processes by which the individual turns food into energy and waste—the processes of anabolizing and metabolizing. These various affairs are, to a certain extent, under the conscious direction of the individual concerned. He it is who decides upon what he eats, how much he sleeps. He it is who should understand and keep under control the rate and health of his own process of metabolizing. He it is who must determine his own health. He must act himself into health rather than out of it. Henderson² approves of

¹ The author does not wish to repeat here what he has written on the subject of growth in *The New Culture*, The John Day Co., N. Y., 1937. Chapter viii, p. 90.

² Henderson, C. Hanford. *Education and the Larger Life*. Houghton Mifflin Co., N. Y., 1903, p. 122. Chapter iv on Organic Education is classical.

that stage of development when "one comes to regard illness as an immoral and quite unpermissible thing." From childhood through life individuals should work to create their own health and the health of others. This is an essential part of the balanced life, for healthy living interacts and permeates every other mode of acting and every other act making for health or disease throughout the whole life.

It is growing on the higher levels which is distinctively human. The use of the word growing in this exposition may be misleading. It has been necessary to choose a common word to express this mode of activity. What is needed is a new word. For the word *growing* is open to an interpretation which debases rather than amplifies its meaning as used to describe the growth of lower beings such as animals and plants. The very structure of knowledge as presented here demands that the ten modes of activity should be distinctively and uniquely human, not shared by earths, plants, or animals. At first glance this seems not to be so in the case of growing. Actually it is the individual's influence and partial control of his own health and growth, especially of higher-level growth, which makes this mode of activity distinctively human.

Our common concepts of growth stop too soon. Actually there has been, in recent years, a definite improvement in our outlook upon the matter of growing. Baby culture is now a carefully directed and well-understood art. After some thousands of years human beings have decided to grow babies instead of letting them stumble up. There is a new race of babies in the land, who are healthy, happy, and well. Possible forerunners of a race of men

who have similar characteristics. But our care for the growth of mankind stops too early. We rear babies carefully to ruin them systematically. We lead them like lambs to the slaughter. That same physical care which is given to babies must soon be given to adults. So that we shall be in one thing right: the growth of bodies which will serve us well in higher things. The maintenance of healthy living up to the time of healthy dying.

All such is but a good beginning. For the very nature of life is to be growing. Comenius used the seed as a symbol of education. Froebel spoke of the "Child's Garden." Marietta Johnson uses a pine branch as a symbol. Things growing and living, indicating that the nature of all improvement, in school and out of school, individual, social, and historical, is in the nature of growth. He who does not understand growth does not understand living. He who does not understand living does not understand teaching. In fact the very presentation of the whole curriculum as given in this book, and symbolized by the chart on page 87, is pervaded by the concept of growing. Beginning by simple action, the individual grows outward in every direction by acting, and acting. Acting as seeds burst and trees branch. All acting is like a growing tree. Thus, as in the case of every mode of acting given here, growing pervades the whole. For in each of the modes of acting here presented, the whole is reflected. Each is in a sense in organic relationship with the whole.³

³ It is the false aim of logical categories to be mutually exclusive, separated by definition. This is to be static. Life classifications do not aim at separateness, but should have the organic qualities of cells, which, while possessing powers of differentiation which reflect the whole organism, yet follow one actual path in the normal course of their fulfillment in the body. Every good classification reflects the whole of which it is a part. Thus each mode of activity reflects, and is related to, the total personality and all its modes of acting.

Functionally plants and trees give us the best and clearest demonstration of the nature of growth. They depict for us the methods and laws of growth. But plant growth stops short upon the physical level. Human growth continues according to the same demonstrated laws, but on the psychological and spiritual level. But the best of growing begins where physical growing ends. For in this total nature, psychological and spiritual man is growing. The whole psychological nature of man, his thinking, his feeling, his knowing, all proceed by the natural process of growing, and only by such a process. Herein lie some of the most unique characteristics of man. Animals and plants can be controlled and trained. But the behavior of man is capable of growth. The infinite possibilities of human growth upon the psychological level are but dimly sensed by our earthy psychologists today. They have not glimpsed the almost endless possibilities of our perfect psychological mechanism. It is capable of heights of which we do not dream, for we have never provided a world in which it can really grow. We have been content to let our humans languish, as weeds in a desert. Our human behavior is shockingly devoid of an imaginative outlook on man. He who really understands the perfection of our physical and psychological equipment, can imagine human accomplishments beyond the wildest dreams of our present accidental world.

Human growth upon the spiritual level is truly primitive. History records few cases of spiritually developed individuals. Not understanding growth on the physical level, how can we understand it on the spiritual level? Spiritual birth is in some respects much like physical birth. It is a new beginning, and that new beginning is

made by but a comparative few. Not being born, how shall they live? Not living, how shall they be truly human? Truly human beings have but begun to grow, and growing has left them in the mire rather than in the heavens.

MODE 2. HOMEMAKING

All human beings need homes for a normal existence. Children come from homes and go to make new homes. The art of homemaking is one which the normal human being is concerned with three times during his lifetime. The first home is that into which he is born. Here he is a subsidiary part of an already established cell of life. As a child he must relate himself to this social unit, and learn to enter into it with increasing co-operation and contribution. When, through the help of its support, he at last becomes self-supporting, he may, unless he has a larger call, establish his own family. So youth and manhood must face a new problem: that of marriage and the bearing and raising and educating of children. Reaching in turn their own maturity, these children begin a new cycle, and the grandfather catches new glimpses of the establishment of his own line.

The proper relationship of the individual to each of these three levels of homemaking should be clearly understood as the day arrives. Home life has endless implications, and the dolls of childhood present problems on their own level which the grandmother must face on hers. Home life is intimately interrelated with every other mode of acting. It can make its contribution and levy its toll upon each. Consequently, its basic problems should

be understood and lived toward solution in terms of the larger whole of life itself.

A clear understanding of the problems of sex, so widely troublesome today, follows from an understanding of its relationship to family life. Much is gained by a realization of the fact that sex activity is functional to the family, not the family to sex activity. Such a realization throws many of the problems which trouble the average man into a new focus. Behavior which is contributory to the healthy life of the larger unit of the family is likely to be normal. That which exploits, injures, or deprives any or all members of the family of the normal opportunities for normal living is selfish and undesirable. The specific problems of youth are easily resolved by those who understand this fundamental state of affairs. Current lack of understanding of these internal and basic relationships of human activity results in the consideration of cases on what seem to be their own merits. Behavior which is natural to animals is unnatural for men. Natural functions should operate in reference not to the animal world, but in reference to the family that is and the family that is to be. Thus the proper approach to the problems of sex for both children and adults is that of homemaking. Good men make good homes. Good homes make good men.

MODE 3. PRODUCING

The natural world in which we find ourselves states the proposition that man must produce in order to live. Pure original producing on the physical level is production from the soil. The elements of economics are not theoretical but factual. The first step in the process of

human economics is production from the soil. These conditions are compulsory, not elective. So the beginnings of economics are compulsory, not elective. Economics begins with the soil. It begins with the human exploitation of earth beings and plant beings. The essential price of production is work. Man must work in order to take the first steps involved in farming or mining. Mining secures earths which are wanted by man. Agriculture secures plants needed by man. Here is simple economics. Plants grow when work is used in cultivating them. The more the work, the more the production. The more the production, the more the riches. Economists may argue until they are blue in the face, but this fundamental fact can be forgotten only with consequent disaster. Today it has been forgotten.

Complications arise when other forms of production arise. Men have other and higher needs. There is the need for manufactured goods; the need for teaching; the need for poetry, art, and music; the need for the ministry of the spirit. Production does not mean production of potatoes only. But it does mean that all production is built on potatoes and such things—for poets eat potatoes. Thus the economic situation is complicated. Gross producers who mine and farm must exchange with other producers who write and sing.

In a simple society one man both farms and sings. As society grows larger gross producers such as farmers exchange by barter with other producers such as teachers. Further growth of society introduces a third class of people, the professional exchangers. Businessmen arise whose work is to facilitate the exchange of products, the exchange of food from the farmer for clothes from the

Behind and Before the Scene. A Marionette Play by the Children of
Grade 5B, Public School 187, Brooklyn

The children wrote this puppet play on "Washington and the Cherry Tree." Of course they made the costumes and scenery themselves.

They built the stage in the shop



manufacturer. The businessman is thus a producer as long as he functions satisfactorily in the exchange of products. When he gains out of proportion to what he produces he is a parasite who drains away the interior strength of society. He annihilates more than he produces. But when he performs his normal function of facilitating the exchange of products, receiving a proper return for his service to all exchangers, then he is a constructive force and an aid to the life of other men. He too becomes a producer. Let capitalism, communism, and every other -ism abide by these truths. For this way lies economic health.

The next step in the development of the machinery of exchange is the rise of the servants of the exchangers, the handlers of money. For money is a convention which has been adopted by men to facilitate the exchange of products.

The meaning of money is widely misunderstood. It should have merely temporary, never permanent, significance. It is nothing in itself. It is but a mirror that mirrors the being of those who have secured it. Strangely it takes on the color of those who receive it, and clean and dirty money reflect the character of those who have it.

Children should learn the meaning of money when very young. It is but a medium of exchange. Just as words are a transitional stage in the process of communicating, so money is a transitional stage in the process of living.⁴ It should never be valued in and for itself, it should never be worked for, it should never be valued

⁴The meaning of money is well indicated in *Sonnets from a Lock Box*, a volume of poetry by the late Anna Hempstead Branch, published by Houghton Mifflin Co.

except in terms of what it can be exchanged for. For money is a fundamental economic convention, the purpose of which is to make co-operative living possible. Money enables one man to help another, since the money return obtained by doing so enables him to meet his own fundamental physical needs. Earning finds its relation to the other aspects of human conduct by freeing them and making them possible. Earning is the result of doing something for somebody else; this in turn frees the individual to make use of his own powers and in the meanwhile secures the benefit of what others have done for him. Buying is receiving the help of others in return for your own given elsewhere. Selling is giving your help to others in return for help received through other channels.

Money is a device which makes this exchange possible. It should be a freer of life. When it acts in the opposite direction it is a social evil. That in turn goes back to the actors. For money, like machines, is unmoral. It takes on the function and the character of its users. Money is what human personality makes it.

Children who have learned the meaning of the few pennies they spend may move in later years to operate such enterprises as a school store or a business in Christmas cards. Such activities, if carried on well, provide a sound basis for such understandings as those mentioned above. In adult life older men need to study the wider ramifications of the economic life, and understand what mankind is doing to men by the misuse of money, and in turn what good is being done and how to better it. Money is merely a medium of exchange.

An understanding of the world use of money in the

higher realms of banking is esoteric knowledge in our world of today. In the Middle Ages men were darkly ignorant of the geography of this world. Today we are ignorant of the ways of money, and of those who direct it, and through it the affairs of men. The world is deeply dangerous to men, because they do not understand the workings of money. We plot the weather in our daily papers. The ebb and flow of heat and cold, the hurricane and the snowstorm. The daily papers carry weather maps, and weather stations throughout the world collect the data about the world of weather, which are co-ordinated in the offices of the weather man. We should similarly know the ebb and flow of money, its geography, its whereabouts. This knowledge is hidden today from the eyes of the common man; its results only are made known, perhaps years after the sales involved have taken place. Sales of scrap iron to nations about to go to war. Sales of airplanes to those who will someday use them for the destruction of life. Sales of money to those who will use it to destroy the lives of men. These things are hidden, as are also the hidden gifts of those who purchase hospitals, and who support by their contributions those who devote their time to the welfare of men. No matter where it takes place throughout the world, every monetary transaction over five thousand dollars should be publicly recorded.

When men understand money they will see what they hold in their hands from day to day. They will see paper promises, and they will know them as such. They will call them, not money, but promises.⁵ They will know just

⁵ Teachers and laymen would do well to discard the term "dollar bill" and use the term "dollar promise."

to what extent these promises may ultimately be redeemed. They will know where the real money of the world actually is, the gold in the vaults, the gold which passes between nations on the international exchanges. They will know that nations must be paid in gold, but that individuals accept merely promises—promises which nations have not always kept. And when they know, when the children know, when the people know, when the scholars know where money is, the world will shudder at the peril in which it lies.⁶ Then the money markets of the world will change, when men actually see that to which they are now quite blind.

MODE 4. TECHNIFYING

Machines are extensions of the human end organs: the hand, the eye, the nose. But in these days the pen and the sword have given way to the propagandist bureau and the bombing plane. We live in a world in which machines have not been subjected to the humans who use them. Unprecedented carnage on a colossal scale has been perpetrated by machines and mechanized units in China among a people who lacked machines. Thus the archaic mind equipped with tanks and big guns can wreak horrible havoc in the world today. And this against the will of such a people as the Japanese, who, as a whole, could never sanction a bloody scourge. Dictators who control machines can control whole peoples by purge and hunger.

⁶ An exposition of the action of money is given with unexampled simplicity in Scherman, H., *The Promises We Live By*, Random House, N. Y., 1938. The simple facts about money which appear in this book should be made available to all learners, children and adults. It is a startling exposé of things men don't know about the world we live in. Such knowledge, generalized in our culture, is necessary to the safety of democracy.

Machines are as good or as bad as the people who use them.

From earliest kindergarten, children should make tools and machines and understand their nature and the ways in which they can be used for or against mankind. At an early age they may learn to recognize the operation of machines about them and of machine constructs in the world of ideas. They should analyze the mechanized concepts of radio and moving picture advertisements, and see how far they determine conduct. They should understand the extent to which men drive automobiles and automobiles drive men. The average New Yorker today has no sense of the indecencies of subway crowding and accepts its invasion of personality as inevitable. We go down before machines because children and youths have not learned that machines must be kept in their place, and that place is where they further only men's good designs.

Understanding the nature of machines, good men would never lend themselves to the invention of new tools of destruction. Nor would they tolerate the daily slaughter of the traffic machine. Under prevailing conditions the average man who drives a car is in danger of manslaughter, but he faces that possibility with equanimity. A people who understood machines and kept them under control would find ways to prevent the yearly destruction. Engineering could become a totally constructive force, and engines which lend themselves to the injury of humanity would never appear. The world of engineering might still redeem itself in the eyes of men.

The dreams that developing use of tools and machines

holds before us are dazzling to the imagination. The automobile, the airplane, and the radio were unheard of but a few years ago. Now dangling before our very eyes are the promises of television and of teleradio control. The eye that will see through matter, the ear that will hear to the uttermost parts of the earth. Transportation over colossal distances for a song. Five-cent telephone calls throughout the world. Unbreakable glass used in buildings together with steel and aluminum construction. The day like night, the control of temperature and weather. All these things our new tools promise us, and more that we cannot even imagine. All these rewards in comfort and convenience for a race of men who can control them, and let the spirit reign in a material world.

MODE 5. COMMUNICATING⁷

Humans are equipped with every type of psychological equipment possessed by animals.⁸ They can communicate by all those limited ways which animals use, and in addition they can communicate by that most human of human accomplishments, speech. Beginning in infancy, speech should become more complicated and advanced as life goes on. New languages are added to the perfection of one's native tongue. New experiences and new ideas should bring a finer maturity as age increases until the words of old men should be wise words indeed.

⁷ Animals communicate only in a very primitive sense, limited to a few instincts open to modification *by human beings* in the form of training. In such cases human beings do the thinking.

⁸ In making this statement I am aware of the fact that animals have certain instincts, such as the migratory instinct in birds and the digging instinct in moles, which humans do not possess. But such instincts are a case of a higher development of lower powers which compensate for the lack of higher habits and of the intelligence of humans.

Communicating through speech has endless implications. Reading, spelling, writing, printing, and publishing relate it to all the other aspects of life. Its possibilities are boundless, and its dignities and grandeur are the dignity and grandeur of the human race, for speech is our highest form of equipment. To be inarticulate is to live on the animal level; to speak with the tongues of men and of angels is man's highest earthly power. Silence is bestial; speech is human.

By an extension of the sense, the word communicating may include all forms of travel from simple walking to modern flying. It is here that the amazing new relationships of communications which have been established by modern technology indicate the birth of a new kind of world. The radio gives to speech a cosmic, certainly a world, range. There is now power in men's mouths. Fast transportation by rail, ship, and airplane has made physical communication and face-to-face communication a new thing. One man alone can reach the ends of the earth. Thus men can make a new earth.

MODE 6. SOCIALIZING⁹

The process of socializing is that of living with others rather than living alone. The hermit life is a life apart, a life wherein one neither gives nor receives from his fellow men. The hermit mind is that which withdraws from reality and substitutes an inner world for outward actuality. This way lies insanity. For the human being

⁹ Since the author has written extensively on this theme elsewhere he does not wish to develop this material repetitively. See Melvin, A. Gordon, *The New Culture*, The John Day Co., N. Y., 1938. Chapter x, p. 122.

must ever adventure outward toward his fellow men, must move from the self-centered world of babyhood to the other-centered life of the world's greatest benefactors. For, contrary as it may seem to what some call common sense, the secret of life lies in the giving, not the getting.

Curriculum building which takes account of this process of socializing must build for pupils an appropriate series of goals from childhood to maturity. Children in the nursery school must be taught to serve themselves as a lesson in serving others. As life goes on, the values of group co-operation should appear in mutual assistance in such acts as building a house or getting lunch. The laws of social living should emerge and be understood by all. Older children must learn the meaning of social sabotage, social exploitation by individual or minority, control by propaganda or by force or by bribery.

Maturity should reveal to individuals in ever-increasing fashion the extent to which mere social welfare demands this outward look of the individual. Schools should demonstrate it so that communities may benefit by it.

MODE 7. THINKING

The simple word thinking is so worn with use and misuse that it is scarcely adequate to represent the meaning intended here. The present writer wishes to divorce it sharply from its psychological associations—associations which have debased and devitalized it. It must be dissociated from inadequate notions which connect it with that figment of the psychologists, the "mind." It must be freed from those deficient understandings which relate it to "brain." The kind of thinking which I am eager to

encourage is thinking which is a function of the total personality. For we think all over. We think not merely in a local brain, but throughout every organ and cell. Thinking is a mode of acting of the total personality which enables a human person inwardly to direct and redirect his being.

As presented here, thinking is intended to include certain processes which are merely specialized modes of its expression. The first is thinking proper, in the sense of the inner directing powers of man, by means of which he observes his own conduct and issues it in action. The second is that special type of thinking sometimes called meditating, which is a process of pausing and mulling over, a process of receiving as well as a process of amalgamating and knowing. The third is that type of thinking which is associated with search or research in which the individual is ever pursuing new knowing and executing that knowing in acting. Each will receive separate consideration in what follows.

Although thinking is merely one of the modes of acting, it is, from the point of view of education, especially significant. Consequently it is necessary to consider with special care the way in which human beings act through thinking. It will be obvious from a thoughtful consideration of the ten modes of human activity that they are distinctively human.¹⁰ They are not the modes of action used by lesser beings. They are not shared by earth, plant, or animal beings. Furthermore, for the purpose of bringing the world around us under control, one of these modes of activity, the special activity of thinking, stands out in

¹⁰ Growing is treated above as uniquely human in its higher sense.

a very important way. From the point of view of this study ¹¹ it is basic. It is a veritable channel through which the human being, in virtue of his most human power of thinking, approaches the control of all the other activities of life.

PITFALLS OF INTELLECTUALIZED EDUCATION

This very state of affairs has been the pitfall of the school. The school, and thus all education, has fallen under the thrall of thinking not based on acting. Each of the other nine modes of acting may be carried on without the aid of special agencies of education such as the school. In fact, they have always been carried on in all societies from time immemorial, even in the absence of any schools whatever. The school is in a very special sense an institution devised to realize thinking, and through the proper use of this act to fulfill in highest measure the best activity of all other modes of activity. The stumbling block of the school has often been that it has attacked this problem directly. It has assumed that children should be taught not merely what to think, but how to think. Worse still, the *how to think* which has prevailed in the schools of the West is the traditional and inadequate and limited method of orthodox logical thinking, with its schemes, boundaries, classifications, logical organizations, lists, forms, and even its language and its method of language. While all these may be regarded as good in a culture which knows their uses and limitations, in one in which they become the

¹¹ It must be noted that this is the approach of the thinker upon education. An artist or musician, for example, would not approach life in this way. He would approach life basically through originating. He would paint or write music. He would not write a book on the curriculum.

approved and accepted, the one and only official method of thinking, educational paralysis results.

The special and signal importance of thinking and its importance for the very life of freedom and democracy, have seriously misled our educational effort. Schools for centuries have regarded this area of thinking as the total preserve of the school. Its special importance, its great significance, its essential quality, have led to an over-emphasis upon it. Traditional schools have limited themselves too much to the collection and presentation of information and knowledge, in the hope that thinking on the part of the pupils would go with it. But thinking and acting go together. In their very eagerness to secure thinking, schools forgot the very materials of which it is constructed. They hoped to get thinking by telling the answers. By solving the problems. Thus learning became standardized, and its vitality was sapped away. Thinking became second-hand thinking, or no thinking at all. Thus by their very eagerness our schools have paralyzed the life they hoped to awaken. If we would find a way to thinking for all, we must find a way to acting for all. Acting is the matrix of true thinking.

The attempt to teach such a specific mode of thinking directly has wrought havoc with schools both in the organization, method, and curriculum. Schools have often failed to recognize that achievement through thinking is a result of individual fulfillment in each and all of the other modes of human activity. That in order to think, one must also behave. One must grow, contribute to one's home, produce goods, technify, communicate, socialize, teach, energize, and originate. These modes of activity are the very grist of the mill of learning. This is what

is meant when it is said that experience comes first in education. This is the meaning of the doctrine that activity is the basis of education. This is the significance of the activity program as an approach to learning.

PITFALLS OF PROGRESSIVE SCHOOLS

In its feeble attempts to follow along this pathway, the progressive, as opposed to what has been poorly called the traditional school, has made but halting gains. For in its half-understood eagerness to get away from the crystallizations of inert school method, the progressive school has forgotten its own true nature and goal. It has made a good beginning, but it has tired too soon. It has settled down into the inactivity which it has aimed to prevent. It has begun in a hazy attempt to carry on life activity, but it has not formulated or stated the modes of activity. Children have done just anything and everything because their leaders knew not what they should do. It has been hoped that ability to think would emerge through haphazard acting. That without the goal of efficient thinking, activities might proceed merrily on. Is it any wonder that children have been dazed and wearied? That the very goallessness of education has been devastating and enervating? That the lack of values after the educational struggle has caused the disintegration of children? That discouragement has resulted and false enthusiasm become the refuge of the zealous? The time has come for reform, for a confession of inadequacy, for repentance and change. Children should proceed through all the activities of life to a new ability to think and perform.

In our zeal to fly from the deadness of traditional schools we must not make the error of understressing thinking.

We need not less of meditating, thinking, and study. We need more of them. We shall not give them up, we shall pursue them more thoroughly than ever before. But in doing so we must clearly realize that thinking does not go on in a vacuum. It is in a program of living, a bevy of activities, that problems and thinking emerge. No school, nor any society, can afford to forget that the other nine modes of acting are the *sine qua non* of thinking itself. Without the full battery of acting in every mode, education and the school cannot lay the foundation of true thinking. Consequently, a wide program of living in the elementary school, expanding to a richer program of living as individuals become more mature, is the basic program without which true thinking cannot proceed in a harmonious and wholesome way.

THINKING FOR EVERYONE

The world can flourish only when all the people think. When each acts thinkingly and then thinks about his activities. Most of the world's children are not even in school, and those who are, are fed the sickly pabulum of a thin arithmetic which cannot make them think and a greedy nationalism which makes them think against their brothers. Not only have we not reached the goal of universal education, but what education we give throughout the world is not a true one. The very concept of thinking, true thinking for all, is sick in the world today. There are still those who believe in thinking for the classes but not for the masses. We cannot too clearly see who is doing our thinking, ourselves or others. For thinking may be done by some special class or group as their special prerogative, or it may be encouraged among all. The priests

of ancient Egypt, the present-day Llamas of Thibetan monasteries, have held thinking to be an esoteric affair. Knowledge in such cases is regarded as the special privilege of the few. Dictatorships provide another instance of a special class-thinking for all the people. In the dictatorship the thinking is done by the dictator and his group, and the average member of society has to learn to think the way the dictator thinks, and what he thinks. In a democratic society, however, thinking cannot be the privilege of the few; it is the duty of all. Consequently, society is faced with the problem of teaching every child and every adult to think for himself. Priestly thinking is esoteric. Political thinking is regimentation. Democratic thinking is the basis upon which rests the very freedom of human personality. In a democracy truth must be exoteric.

The method of retirement and meditation is lost in Western society. It is far more characteristic of the East. An eminent Chinese college professor once wrote me that he expected to spend Christmas in New York in retirement on account of the Sino-Japanese war. Many Americans would not even understand what he meant by such a remark. For the effect of the machine pace, which men are forced to follow, hurries them into indigestion, neurasthenia, and the speed disease. A poet of my acquaintance writes almost entirely after midnight. It is his only escape from a pursuing world. Quietude, silence, communion with nature, listening for the still small voice, must be recovered in the West. America should by now have learned that God is not in the lightning.

The American scramble for school begins with a hasty cold cereal and a dash for the door. The very beginning

of the school day is undignified and destructive to the quiet of family life. A late winter's sun indicates that winter school should begin at ten and end, if necessary, at four. If such were the case, the morning companionship of the family in the home might be maintained. Children should be taught the meaning of quiet moments. Youth will then seek them. Maturity will find a way to retire for periods of calm as Chinese artists and scholars retire to retreats in the mountains.

Only in terms of quietude can the correct mood be established for studying or carrying on research. For these matters are intimately related. The very essence of study is search with something in mind. Search under inspiration. Study for its own sake, just learning something, in the hope that it may be useful sooner or later, is an inadequate method of learning. Mastering or memorizing solely for the sake of training or disciplining the powers of personality shows distrust of life. It goes on the principle that a program of living will not provide discipline, will not demand self-control, will not pose hard problems; that life is without storm and stress. Such views produce half-motivated, inefficient study. True study is that in which one pursues or searches for the answers to important problems or the information needed in living.

For most men, study ends too soon and research never begins. Education should lead all students from study to early research—research motivated by their own needs to know and to apply what they find to problems which are directly under their own care. Any modern community worthy the name should be able to educate the average individual to original and constructive research in some field pertinent to his work by the time he reaches

adolescence. Too often we underestimate the latent powers of youth.

The deep and serious research of world scholars has never yet been co-ordinated. We are still in the censorship stage when postage between far nations such as China, America, and India prevents the interchange of newspapers among the general populace of such distant countries. Cultural co-operation between various parts of the world is yet to be born. We must move toward it. We still speak the babel of many tongues. Every child should learn how men divide the world into cultural provinces, and learn that this way lies war.

MODE 8. TEACHING

The teacher is a person who makes other people in terms of himself. Teaching is, therefore, one of the highest of human activities. Unfortunately, in our current society, it has become seriously entangled with business, and teaching is frequently confused with earning. No teacher can teach to earn money without debasing his work. He must teach the truth as it is, teach life as he knows it. If society will grant him money in exchange, society is fortunate indeed. If it denies him earnings proportionate with others of his kind, it is still his duty to teach.

But teaching is not the right or privilege or responsibility of a special class. Every man is a teacher. He teaches others about him in a general sense by every act he carries on. But in a special sense he is a teacher of the rising generation. What he knows and what he believes he must teach. If he knows and believes nothing, he has nothing to teach. Too many such adults are the cause of too many bewildered youths today.

Even children must teach both themselves and others. They should be early led to recognize their teaching function, to prize it, and to hold themselves responsible for it. The seriousness of this trust should be well understood before any youth turns to teaching as a life work. Every man is, by the nature of the world, to some extent a teacher. But those who assume a special responsibility become more potent with advancing age. The best teacher should be the oldest one. When will America develop and respect her own sages?

MODE 9. ENERGIZING

Energizing is the act of receiving energy or power. It is my observation that each human being is born with a certain quantum of energy, which comes to him at birth. This he continually replenishes by eating and breathing as long as he lives. In addition to this purely physical energy, however, it is possible to observe another and a higher energy: the energy of self, or spiritual energy. Of this kind of energy children seem to have a certain quantum, which remains with them to later childhood. It may be observed, by those who are able to see, in a certain freshness and airiness, a flexibility of human response, a quickness and lightness of step, a spontaneous affection. The eagerness of childhood is the eagerness of the spirit. It gladdens the hearts of men in every land. It is universally to be seen.

But toward the beginning of adolescence this quality seems to lose its involuntary nature. Unless it is deliberately maintained by the individual by processes which he does not fully understand, it seems to fade. And with it fades the light of life. With its loss comes the loss of that

which is most human, and that which is most influential in the affairs of men. It is the ministry of religion to see that the individual finds the source of this power. For the function of religion is to provide man with new power, with added energy. The individual who truly discovers the Divine secures a new birth of the spirit and receives an endowment of spiritual power denied to other men. Such has been the case with the spiritual leaders of mankind. They have possessed an energy which made them a directive force in their own lives and in the lives of other men. It is through full and ever-fresh energizing that men become great factors for good in a world of material weakness.

In the process of energizing man exercises his greatest freedom. Here he is free indeed. The universe itself instructs him in its law of freedom. For, strange anomaly, man can himself elect to live together with the universe. He may co-operate with or struggle against the general structure of life, and this by every separate and single act, or in the total life. All the world's a school, and all the men and women merely learners.

The area of energizing is the area of religionizing. In this area lie some of life's deepest problems. They have been somewhat obscured by a dialectical culture which has confused theology with religion, and materialistic institutional organization with spiritual prowess. Christianity has too often obscured Christ, and has too often presented him as an idol rather than as a person powerful and energizing to the individual. Theological and institutional monopoly are troublesome in the modern world. They have stressed passive rather than active forms of belief. The Christian heritage of the Western world has

too often seemed a mere cultural shell. It has not been true to itself. The young people of today want a religion of energy and power. They want a way which hangs no moral code about their necks without first giving them the spiritual power to understand and uphold it. A way of life which impounds and imprisons not the man himself, but the world to the service of man.

MODE 10. ORIGINATING

Originating is the highest mode of human action. For by it new things come into the world. It is usually when the other affairs of the world have been well disposed, when work is done, that the human being, individually or socially, is able to rise to new heights.

Inventions in the field of science or philosophy, and production in such fields as art, music, sculpture, poetry, and literature, are various forms of originating. The words creative activity or creativity are often used to describe such forms of conduct, but these words are somewhat pretentious and often, when applied to the work of children or immature people, seem somewhat ludicrous.

Even children can originate. Ideas or stories, simple new tunes which have come to them, are signs of their originating tendencies. It is from such fragile beginnings that much of human progress may ultimately arise. Consequently, we should treat with special encouragement and respect the original aspect of every personality, and give special place to those unusually original beings who can give us or teach us new things.

The achievements of a race in the realm of the imagination, in the realm of original philosophic activity, are often the achievements by which it is remembered in his-

tory. In America today we have a good material foundation for brilliant human achievement. It can be realized only by giving the fullest opportunity to the genius within and among us.

CHAPTER XII

WHAT IS THE PLACE OF KNOWLEDGE IN THE CURRICULUM?

THE problem of knowledge, what it is, and what to do with it, must be solved by the teacher and by the curriculum builder. For concerning the relationship of knowledge to teaching and to curriculum there is much current misunderstanding. How will knowledge appear in the new curriculum? What knowledge will be in, what knowledge will be out? On what basis may the teacher choose, and on what basis may he reject? This practical problem must be clearly understood by all who would make or teach by curriculums in modern schools.

There is real value in answering Herbert Spencer's famous question, "What knowledge is of most worth?" His own answer—"Science"—is seriously inadequate. A new answer is required, an answer which is not given in terms of any subject, but in terms of human personality. In terms of human action. When knowledge is so considered, it is possible to indicate two kinds of knowledge which are of special worth to the learner. These are: First, knowledge which is needed by the learner at the time of learning or acting. Second, knowledge which has direct significance for or bearing upon the learner's customary or expected actions.

IMMEDIATE KNOWLEDGE IS OF SPECIAL WORTH

Knowledge which is needed immediately for the carrying on of current activities is knowledge of special worth to the learner. Thus knowledge of the workings of electric current and of electric battery is of worth to elementary school children who wish to telephone between two rooms. Much chemical knowledge is needed by the secondary school student who is carrying on simple experimentation with freezing mixtures and refrigeration. Knowledge of Bellamy's *Looking Backward* or of Veblen's theories is of use to a college student who is attempting to gain a knowledge of current social conditions. It is obvious that the only way in which immediately needed knowledge can be identified is in terms of activity engaged upon. Since the activity engaged upon by the individual depends upon the goals he sets up for himself, it is clear that *knowledge cannot be definitely included in the curriculum except in terms of activities concretely expressed*. No averaging process is valid except in terms of concrete process-goals. A general forecast of knowledge suitable for all children cannot be made. Thus the customary method of stating curriculum in terms of knowledge-to-be-mastered-by-all is stilted and inadequate. The writing of curriculum in terms of specific knowledge for all children violates the nature of learning.

FUNCTIONAL KNOWLEDGE IS OF SPECIAL WORTH

The same state of affairs prevails with respect to the second type of knowledge which is of special worth,

namely, functional knowledge. Functional knowledge is knowledge which is the natural requirement for the fulfillment of an act. To build a bird house for swallows, just certain knowledge is needed. Knowledge of the habits of the birds is required. They nest high and fly directly through the hole of their nest. They will not nest in a dirty house. This knowledge is functional with respect to the act of making a house for swallows, since its application is required to make that act successful. The house is thus placed on a high pole away from trees, no platform is set in front of the round hole by which the birds enter, and the pole must be set up in such a way that it can be taken down in the fall and cleaned for the new nesting season. The knowledge is functional because the act of making a bird house will not function successfully without it. But such knowledge is simple. The same state of affairs prevails with respect to buying a can of good tomatoes, holding the attention of an audience, operating for appendicitis, or conducting a campaign for the Red Cross. Specific knowledges assist the progress of the work. Such knowledges are functional to that act.

One sharp and important difference exists between knowledge which is immediately needed and knowledge which, though not needed at once, is nevertheless functional. The first type of knowledge need not be learned until it is required. So a child need not learn to write a note until he wishes to send one. Knowledge for immediate use is thus suited for young children, whose tenacity of purpose is poorly developed. Functional knowledge, however, must frequently be learned some time in advance of the act in which the learner makes use of it. Thus the doctor does not wait until he has a patient with

some ordinary ailment, then rush to find out what is the specific for that particular ailment. Knowing beforehand that he will ultimately be required to deal with that ailment, he studies in advance the medicines and methods which will be needed. He has early set himself the goal of helping to cure such ailments. He then proceeds without waiting to the mastery of the knowledge required.

Consequently curriculum makers may prepare functional knowledge in advance in terms of *specific goals*. But the setting of those goals must depend upon the choice of the individual. It is thus obvious that there is no unattached knowledge of most worth without reference to the person of the learner. Knowledge cannot be listed in curriculums as that which is of most worth for all learners. The only possible procedure for the curriculum makers is to forecast some process-goal such as *telling the time of day*, and arrange suitable knowledges in terms of the goal forecast. Teachers who must supply knowledge required by children must have much knowledge in specific form readily available. Those who assist students toward goals which are functional but not immediate may prepare much material in advance. But there can be no forecasting of such knowledges for all students by general prescriptions.

Ordinary curriculums have become the wastebaskets of accumulated information. In the zeal for thoroughness, curriculum makers have collected all sorts of knowledge, and have made the fact that any given element is knowledge the defense for its inclusion. Once in, tradition keeps it in place in virtue of its own presence. So materials and courses pile high from generation to generation, and clutter the field of learning with their age-long persist-

ence. If the functional nature of any curriculum element were made an essential requirement for its place in the curriculum, dead knowledge and the accretions of the centuries would fall away. There need be no fear for the loss of knowledge, for practically all knowledge is needed by someone at some time. Gothic and ancient Chinese script are of significance to the antiquarian. Let such things be left to such people. We have too many who pose as scholars and teachers who are only curriculum antiquarians.

THE NATURE OF TRUE KNOWING

Knowledge is not commonly recognized and distinguished from that which is not knowledge. It is frequently confused with illusion. Scholars often confuse the figments of their own minds with true knowledge of the outer world. When they proceed to elevate such illusion to the status of belief it becomes delusion. When they make it a doctrine and teach it as knowledge it spreads delusion among the general populace. Complex delusions produce conflicts and mild insanities. Hence, the contribution of that which is not knowledge is deleterious to the general good. It is not merely innocuous, it is actually injurious. For example, there are those who think themselves scholars who have from their own subjective concepts made models of the heads of supposedly early men. These models have been placed in museums beside stuffed animal specimens from field and forest. They are presented to the public with the same definiteness as that of current natural phenomena such as birds and mammals, and near such ancient but actual skeletons as that of brontosaurus. Thus illusion has been taught to the unthinking and un-

suspecting youngsters who frequent our great museums, and all this under the banner of science.

It is time that the word science is recovered to its ancient meaning. Our antiquarian Latin becomes at this point functional to remind us that the word *science* comes from *scientia* and means simply knowledge. Distortion has fallen upon it in recent years until it has been supposed that science is not mere knowledge in its true or general sense, but in a particular sense, the knowledge of a priesthood, the false scientists who have brandished material phenomena as the only reality. Their supposed knowledge has been only that which can be objectively verifiable in the material world. In other words such "scientists" have made the *a priori* of materialism the touchstone of truth. In the hands of such false scientists so-called science has become the polemic of materialism.

Yet the illogicality of the priesthood has been notorious. Any theory, no matter how far-fetched, has been welcome, without verification, if only it could be made to support the basic philosophy of materialism. Thus the priests of materialism, the pretenders of false science, have embraced the idea of pure science—science which is based only upon the objectively verifiable. The dishonesty of the whole affair must be obvious to anyone who pauses to realize the impossibility of purely objective knowledge. Knowledge is the subjective counterpart in the person of objective reality in the outer world. Knowledge is not a thing. Certainly not a material thing. It is the immaterial counterpart of an exterior reality, material or immaterial. True knowledge is only of that which is actually there, whether it be a cat or a controversy. If it has no actual or possible counterpart in the real world,

material or immaterial, it is not true knowledge. It is falsehood. To pretend that pure science is that which is known of the material world, verifiable by material tools, is to neglect knowledge of the immaterial. Such knowledge of the material in isolation is not merely partial but it is impossible.

Yet this priesthood has countless followers. Followers among the intellectuals, followers among the clergy, followers among students, and followers among their teachers. Everywhere, those who long for the fleshpots of materialism follow in their train. They prefer the lie to the truth and darkness to light. They wrest the truth to their own destruction.

Science means mere knowledge, and true knowledge means all knowledge. The knowledge of the fishwife about her clams as well as the knowledge of the professor about his biology.

Science is all knowledge. The scientific man is the true man. Science is not the preserve of a few, but the running ground of all men. The scientist is not to be judged quantitatively but qualitatively. He is the true scientist who knows a little of what is true, rather than he who falsely thinks he knows a brainful.

What, then, is the criterion of that which is true knowledge or true science? Certainly not any theory that certitude lies in material alone. True knowledge is of that which has actual existence independent of the observer. It has its subjective and its objective aspects which must correspond in every particular. Consider, for example, any object such as an ax. Knowledge of the ax is the subjective (present in the person) counterpart of the objective ax (existing out of the person). The person and the

phenomenon must correspond if true knowledge of the ax is to be possessed by the person. Here, then, is the criterion of true knowledge. The person is in possession of true knowledge when the inner reality in the knowing person corresponds to the outer reality independent of the person. In psychological terms true knowledge exists when there is complete correspondence between the concept and the object. Primary knowledge is composed of concepts which have exact counterparts in the outer world. Secondary knowledge is applied knowledge, that in which the primary data of knowledge are rearranged by the person in new designs to be subsequently realized in the outer world. Thus science proper must begin with primary knowledge. Primary knowledge must be the fundamental basis of science and every science. The task of science proper is to discover those patterns which lie in the world around us independent of the observing personality.

Curriculum builders who are faithfully scientific will see much that pretends to be knowledge drop away. Knowledge which has no counterpart in fact—nay, knowledge which contradicts fact—will disappear. The restless imaginings of teachers who are not scientists, but bad poets, would be gone. Lectures would become simpler and fewer. Curriculums and courses would become shorter. Then knowledge would become its own servant.

PART III
MAKING A NEW CURRICULUM

*To force expression before the child is ready,
or to repress it afterward, are two of the greatest
sins a teacher can commit.*

—FRANCIS W. PARKER

CHAPTER XIII

REORGANIZATION OF EDUCATIONAL LEVELS

ARE there natural levels of human development? What are they? Have the schools known them, and taught in harmony with them? Before presenting examples of curriculum material it is well to point to some series of natural levels for school life. The well-known organization into grades is an historical accident. It came to us by devious paths which we do not understand. We need a new plan which will go with modern procedures.

A school which is organized in terms of the lives of people, and what they expect to do in the school, is desirable. It will be freed from the blighting effects of lessons which must be mastered whether or not they are worth learning. The vitality of generations of young people has been sapped away, and directed into wasteful and roundabout ways of learning in the course of mastering subject matter in nonfunctional form. Children learned languages they would never speak. They studied countries which held no meaning for them. They read a form of history which was to them without significance. The chief purpose toward which such learning was directed was examination. That which could not be written down on an examination paper was not learning. The goal of teaching became only that which was examinable. It overlooked the highest things of life, its most significant and subtle modes, which are beyond the cross-questioning of

pedagogues. Learning was of use only when the individual learner salvaged it for action. Only the unusual person could rearrange and reapportion his learning in such a way as to make it an aid in the activities of life.

With the removal of the pressure of nonfunctional subject matter and the introduction of learning which is functional, many school reforms long dreamed of can be attained. In the first place it makes possible the abolition of the old grade or horizontal system which arranged school life in a ladder formation on different levels of attainment. It was arranged thus—

University	Year 3
	2
	1
College	Senior
	Junior
	Sophomore
	Freshman
High School	Year 4
	3
	2
	1
Elementary School	Year 8
	7
	6
	5
	4
	3
	2
	1

Instead of such a horizontal principle, the vertical principle may now come into operation. Schools need no longer be thought of in layers which separate children into age levels. Life itself arranges children in families on the vertical principle. Thus the older may be a helper of the others. Life in school should be fertilized by the sympathetic companionship of children of different age levels. We have introduced into our society by our grade levels and our standards of child behavior a false discrimination on the basis of age. This has resulted in enmity rather than friendliness between older and younger children, and destroyed the natural responsibilities of old toward young, and of young to older people. Children have been trained to be supercilious. The older have learned to look down on and avoid the younger, and the younger to neglect and despise the older. The true functional method for the organization of school life is the family system, the group in terms of functional behavior. Schools should be organized in families, the members of which are pursuing similar ends. Thus in a large sense the whole elementary school is one family in which group needs, such as a whole morning, say, to fly kites together, a picnic, or a school visit to some other school are met by friendly companionship between young and old in group action.

Such large families are, however, too cumbersome for everyday purposes. It is consequently necessary to group children in small groupings so that they will be with a family or group whose common needs and interests and activities are similar. According to its freest interpretation, the children in a given school might be grouped annually in terms of the families in which they find their

closest active fulfillment. Such a flexible plan could be worked out only in schools in which the greatest freedom in terms of adequate teaching staff and flexible teaching methods could be realized. The ordinary school, not too well supported by public funds, and not too well staffed in terms of the number of teachers per pupil, needs a more firmly planned organization into a series of functional families in some such order as the following:¹

Schools for Small Children (3-6)

This is for children from three to six years old. It is intended to supply suitable care for small children, and to supplement the services of the home. The nursery school may be regarded as a substitute for a good home. Here obviously is a functional group in which the children live together as in a large and companionable nursery.

Such an organization of schools into family groups, and the association of family with family, and the interpenetration of the school vertically is sound procedure. At times younger and older children should work together. Such companionship is the accompaniment of

¹ This chapter was written before the author was aware of the fact that ideas of a similar nature were being advanced by Robert Hill Lane in *The Progressive Elementary School*, Houghton Mifflin Co., 1938. He distinguishes four school levels.

School of Early Childhood	(age 2- 8)
School of Later Childhood	(age 8-12)
School of Early Adolescence	(age 12-15)
School of Later Adolescence	(age 15-18)
School for Adults	(age 18-80)

This independent suggestion, varying but slightly from that made here, will be preferred by some. It comes from one of the most distinguished practical school men in the country. It is thus a striking confirmation of the point of view found in this section.

functional grouping which harmonizes with the true nature of the activity school and with the employment of an activated curriculum.

Schools for Children (7-12)

Children's schools are for pupils of the approximate ages of seven to twelve. Although the various school levels should not be entirely cut off from one another, age-long practice suggests a school for children. In such a school there might be any number of families. Usually in a school of normal size there might be either three families or two. In two-family organization the children would be grouped in a rough way so that one family would be composed of the children five, six, and seven years of age; the second family of those eight, nine, and ten. In such a two-family school each family should have three teachers, and three rooms variously and functionally equipped. In a three-family school the children of a family would be in three groups; thus the five- and six-year-olds would generally be together, the seven- and eight-year-olds, and the nine- and ten-year-olds. In such case each group would have two teachers and two classrooms.

Teachers and rooms should not be rotated as in the junior high school plan, where pupils pass from room to room and teacher to teacher on a regularly prearranged schedule. Teacher schedules made in advance, room schedules, and the passing of pupils from teacher to teacher for the study of various subjects should have no part in a functional scheme. Rather should the teachers be organized as part of the children's group. In a two-family school the teachers might be a co-operating staff with a senior teacher and two others of less professional

**Hawaiian Life as It Appealed to Children in Public School 155,
Brooklyn**



experience or understanding. Thus if the senior teacher were a professional of long experience and extended professional training and experience, the other teacher might be specially trained in art, music, medicine, or psychology. In this way the whole school family might be staffed by experts who could be of service to the whole school. The general staffing of the school should include in addition a medical doctor, a psychologist, and a visiting teacher.

The work of the three teachers should be co-ordinated with the current activities of the group in such a way as to facilitate the whole program. Each teacher would work with the others according to the activities under way among the children and in terms of the equipment available. At times two teachers might work with a small group, at other times one teacher with a large group. All possible combinations of teachers and children might be worked out in a co-ordinated program which would keep all teachers and children constructively engaged all the time. Such a program demands the staffing of the school by not less than one full-time teacher for every twenty-five children. The principal of the school might spend his time in educational work, including a teaching schedule, if a business manager were employed by the school to look after the noneducational aspects of the school administration which have such a deleterious effect on the educational outlook of many principals today. They provide a false analogy between school life and the business world. With a varied and well-trained staff a new richness would come to the elementary school. Teachers and pupils could build a family life which would be mutually enriching and of common worth.

The use of rooms and equipment might be similarly

functional and flexible. The construction work might be localized in one room, quiet work in another, while a third might become a laboratory center. Thus might the whole school become a workshop and a comfortable home for children. Such an educational paradise is to be achieved by those who have the vision to desire it.

Schools for Youth (13-18)

Youth schools are for young people of about the ages of thirteen to eighteen. Recent studies have indicated the importance of friendly relationships between older and younger adolescents. Friendship and companionship between older and younger boys and between older and younger girls, if well-established and properly directed, can be the means of much satisfactory personal development. The distinction between junior and senior high school, which has had so much attention for some years, has proved most unfortunate. It was the product of the professorial theorist who was out of touch with child life. It enabled reformers to make a show of reform without changing the nature of established educational patterns. The association of boys of the ages here suggested has proved most successful in the Public Schools of England for generations, and has been, in fact, one of the redeeming features of those undemocratic institutions. The goal of manhood is too far off for the young adolescent. The intermediate goal of later youth is nearer and dearer. For students of this age the grouping of individuals in families is most appropriate. Any of a number of plans may be worked out. Families may approximate age levels, or some such plan as that suggested for the children's school may be followed. On the other hand, families or houses may be

formed in conference with the students themselves, for such plans vary much with specific schools and localities.

Schools for Young Men and Women

Schools for young men and women may carry on work of the college level. Such work should be organized in groups in accordance with the confluence of activities and purposes of the members. Such a plan would be made possible by early survey of and conference with the incoming students. Subsequently the program could be made and developed. Such a plan could result in a really active form of functional learning for college students.

Schools for Adults

There are many kinds of schools for adults. All are valid if the work in them is functional. Some result in acquired abilities for which diplomas may be given. Others in advanced work of university level which may be signified by the awarding of higher degrees. There is value in school for all who will come. The most widespread development of adult education is seriously desirable. In such schools supplementary or make-up education should be provided for those who have not taken it at a younger age. This need in no way lower the standards or prestige of scholarly research and creative learning undertaken in the colleges and universities.

CHAPTER XIV

THE TECHNIQUE OF CURRICULUM CONSTRUCTION

THE curriculum of Comenius is the active forerunner of our current curriculums. What we use today may be regarded as debasements of that original model. We have copied it and mixed it with added materials. We have patched it and cluttered it with scraps from the yesterdays and todays. The philosophy of unity and design from which it was derived has been forgotten, so that curriculums are gratuitous, accidental, and full of mere odds and ends. Not only has the internal orderliness of the Comenian curriculum been lost, but no order of any kind remains.

The groundwork has been laid in these pages for the actual construction of a new curriculum. It can be the first new curriculum since Comenius. If teachers and superintendents and curriculum committees can work together along the lines here set forth, they can create new values and make new schools.

It remains to set forth in more specific terms suggestions, procedures, and techniques for the use of such teachers and curriculum workers. The first step in such work is to master the materials and the point of view set forth in these pages. This may be done by individuals, or by groups and conferences in discussion. The second step is to list, as they are listed in the following pages (140-154) goals which are derived from the ten modes of human activity. Under each mode should be listed the

levels, grades, or classes for which curriculum is to be built. With the examples given here as models, school people who have *experience*¹ and *a knowledge of what has been written here* can elaborate a complete curriculum for the group in which they are interested. The examples presented in succeeding pages are merely models, intended to say in specific form what has been said more generally in previous sections of this book.

Presentation of a complete curriculum for all levels of learning is too complex and difficult a task for this book. A complete set of examples for every mode and on every school level can serve a valuable purpose. It illustrates the internal structure of the whole plan, and indicates the nature of organic development which can be furthered by such a curriculum. When working on any given level, teachers will find it necessary to modify the examples presented, up and down in the scale of maturity according to the needs of the children or youths they have to teach. In this way they will find it possible, using the examples given here as a key and a nucleus, to make materials suitable to the use of their own students.

EXAMPLES OF CURRICULUM ELEMENTS ORGANIZED IN TERMS OF MODES OF HUMAN BEHAVIOR

It will be observed that the lists immediately following are not presented in the form in which curriculum will finally be written down. They represent a work stage, a stage in the preparation of the written form of curriculum.

¹ Experience with and study of children is an indispensable essential in the preparation of the written form of curriculum. Teachers are therefore the most important consultants available for the work of curriculum construction.

They are the model for work sheets to be used by those who wish to expand the few examples given into a complete set of materials for their own use. True curriculum is, of course, what specific children actually do. Written curriculum is an attempt to forecast what they will do without saying where, when, or in relation to what sequence of acts. Time and sequence should not be written into curriculum materials.

I

GROWING

- | | |
|--|---|
| 1. Children's Beginning School
(Primary—
ages 5-7) | Eating what is good to make me grow well—e.g. milk.
Sleeping the amount desirable to make me grow well.
Playing in the way desirable to make me grow well—for example, not playing in damp clothes. |
| 2. Children's School
(Intermediate—
ages 8-10) | Behaving in such a way as to make me grow well.
Bringing my eating habits under my control.
Bringing my sleeping habits under my control. |
| 3. School for Boys and Girls
(Upper—ages
11-13) | Mastering skills in desirable games such as swimming, tennis.
Bringing my body under my control: |

In general skills—walking,
standing.

In special skills—as piano
playing.

- | | |
|---|--|
| 4. Youth School
(Secondary—
ages 14-17) | Avoiding sickness.
Taking over complete control of
my own health.
Living life in healthy balance. |
| 5. School for Young
Men and Women
(College—ages
18-21) | Habitual mastering of my health
and personal health habits.
Exercising in a suitable fashion. |
| 6. School for Men
and Women
(University—
age 22-) | Living the bodily life correctly
on an automatic and uncon-
scious level. |

2

HOMEMAKING

- | | |
|---|--|
| 1. Children's Begin-
ning School
(Primary—
ages 5-7) | Doing my part in housekeeping—
e.g. dressing myself.
Doing my part in helping my
family live well—e.g. showing
pleasure when pleased. |
| 2. Children's School
(Intermediate—
ages 8-10) | Taking over regularly some share
of housekeeping at home and
in school.
Doing something for other mem-
bers of the family and of the
class. |

- | | |
|---|---|
| 3. School for Boys and Girls
(Upper—ages 11-13) | Caring for my own personal affairs in the home—for example, with respect to keeping my own room tidy, collecting soiled clothing. |
| 4. Youth School
(Secondary—ages 14-17) | Automatically living on an adult level in matters of homemaking. |
| 5. School for Young Men and Women
(College—ages 18-21) | Following a wise personal course of behavior with respect to forming a new home. |
| 6. School for Men and Women
(University—age 22-) | Following a wise personal course of behavior with respect to forming a new home. |

3

PRODUCING

- | | |
|--|--|
| 1. Children's Beginning School
(Primary—ages 5-7) | Helping the workers in the family.
Dramatizing in school. |
| 2. Children's School
(Intermediate—ages 8-10) | Definitely and regularly helping members of the family in some aspect of their productive work—for example, keeping a desk including stationery and postage stamps in order. |

- | | |
|---|--|
| | Dramatizing in school forms of productive work. |
| | Carrying on some form of productive work such as making Christmas cards for sale. |
| 3. School for Boys and Girls
(Upper—ages 11-13) | Carrying on productive work—keeping a garden.
Making a serious attempt to help workers of the home and the school.
Assisting in upkeep of the school grounds and plants, rake leaves, tidy classrooms. |
| 4. Youth School
(Secondary—ages 14-17) | Similar activities to those of lower schools but on a higher level.
Engage spasmodically in some productive work for pay.
Carry on practice in vocational work if vocational choice has been made. |
| 5. School for Young Men and Women
(College—ages 18-21) | Similar to that on lower levels.
Engage regularly in some form of productive work for pay.
Carry on vocational practice, if vocational choice has been made. |
| 6. School for Men and Women
(University—age 22-) | Similar to work on lower levels.
Engage in vocational practice for pay. |

4

TECHNIFYING

1. Children's Beginning School
(Primary—ages 5-7)
Making objects needed by myself and others—objects of cardboard, wood, *papier mâché*, metal, clay.
Building with blocks.
Operating toys.
Caring for toys.
2. Children's School
(Intermediate—ages 8-10)
Making needed objects of any available materials on a higher level—making a sled.
Operating and caring for machines—a toy railway, a lathe, a typewriter.
3. School for Boys and Girls
(Upper—ages 11-13)
Making complex and skillfully finished objects of selected materials—aquarium, radio.
Operating, caring for, and repairing machines. Driving an automobile.
4. Youth School
(Secondary—ages 14-17)
Making very complex and skillfully finished objects of many diverse materials—a motor, a glider.
Operating, caring for, and repairing elaborate machines such as an airplane.

5. School for Young Men and Women (College—ages 18-21) In terms of one's specially developed abilities, operating and caring for machines to the extent necessary.
All machines encountered in daily life.
Aiding in such community work as building a school community and its buildings in some rural area.
Use of technical aids in experiment and research—for example, special biological techniques, microphotography, operation and care of telescope.
6. School for Men and Women (University—age 22-) Similar to work in college adapted strictly to vocation and personal needs.

5

COMMUNICATING

1. Children's Beginning School (Primary—ages 5-7) Talking so that others can understand what I say.
Telling stories that others want to listen to.
Reading what others write (in terms of level of pupils' maturity).
Writing what I want others to read—signs, notices, notes.

- Singing by myself and with others.
Playing on a block flute or a xylophone.
2. Children's School
(Intermediate—
ages 8-10) Writing bulletin announcements.
Writing letters so that others can read them.
Speaking aloud so that I can be understood.
Writing on wall newspaper.
3. School for Boys
and Girls
(Upper—ages
11-13) Speaking aloud to groups.
Writing and publishing a class newspaper.
Playing on a musical instrument
—piano, violin, marimba.
Singing by myself and with others (higher level).
4. Youth School
(Secondary—
ages 14-17) Similar to lower schools but higher level of attainment.
Writing for the school magazine.
Writing accounts of investigations.
5. School for Young
Men and Women
(College—ages
18-21) Pamphleteering.
Writing articles.
Writing for college papers.
Publishing what one writes.
6. School for Men
and Women
(University—
age 22-) Giving lectures on recent investigations and research.
Publishing books.
Publishing articles.

6

SOCIALIZING

1. Children's Beginning School
(Primary—ages 5-7) Playing with others.
2. Children's School
(Intermediate—ages 8-10) Working for the good of classmates or schoolmates.
Making inquiries, collecting information, or securing materials in out-of-school time.
3. School for Boys and Girls
(Upper—ages 11-13) Contributing to community life through services of Boy Scout Organization, Safety Patrols, Big Brother Organization.
4. Youth School
(Secondary—ages 14-17) Assisting co-operatively in the work of Social Agencies. Distributing goods. Making surveys.
5. School for Young Men and Women
(College—ages 18-21) Working in social settlements without pay, leading groups.
Acting as scoutmaster of Boy Scout troops.
Doing church work.
Doing Red Cross work.
Observing political meetings and rallies.

- Observing ward politics in action.
Dramatize political action in college (independent student organization).
6. School for Men and Women
(University—age 22-)
- Contributing to social welfare by direct service to social organizations and by financial contribution.
- Engaging in political action as a private individual.
- Engaging in the work of agencies for social and political guidance and reform.

7

THINKING

(Observe special notes on this section Observing, Meditating, on page 106)

1. Children's Beginning School
(Primary—ages 5-7)
- Thinking about what I do in and out of school. (Teacher must focus this goal on improvement in all modes of activity. $\frac{1}{6}$ of the school day.)
- Making trips into the neighborhood.
2. Children's School
(Intermediate—ages 8-10)
- Thinking about what I do.
Seeing the things around me.
Finding out about the things around me.

Making trips to places which specially interest me—ships, parks, factories.

Asking thoughtful questions about myself and the things I do and see. ($\frac{1}{4}$ of the school day.)

3. School for Boys and Girls
(Upper—ages 11-13)

Getting an orderly outlook on the world around me. Preliminary recognition of the five sciences.

Getting an orderly outlook on my ways of acting—a preliminary familiarity with the ten modes of behaving. ($\frac{1}{3}$ of the school day.)

4. Youth School
(Secondary—ages 14-17)

Getting an organized mastery of the Field of Knowledge (see page 88).

Taking training in techniques of securing knowledge, and of mastery of instruments of knowledge, microscopes, readers' indices, location of library materials.

Getting training in a vocation (for those who will not proceed to higher schools).

Making preliminary researches in fields explored by others.
Practicing research methods.

- | | |
|---|---|
| | Observing and reading widely.
Experimenting. ($\frac{1}{2}$ of school day.) |
| 5. School for Young Men and Women
(College—ages 18-21) | Doing original work in fields personally significant.
Reading and studies based on personal research. ($\frac{3}{5}$ of school day.) |
| 6. School for Men and Women
(University—age 22-) | Contributing to knowledge.
Mastery of elaborate techniques of research.
Development of personal research techniques.
Carefully planning bibliography of personally significant reading.
Reading and study of personal bibliography. ($\frac{4}{5}$ of school day.) |

8

TEACHING

- | | |
|--|--|
| 1. Children's Beginning School
(Primary—ages 5-7) | Showing others what I know that will help them.
Teaching myself what I can learn by myself. |
| 2. Children's School
(Intermediate—ages 8-10) | Giving definite time to teaching others what I know especially well. |

- | | |
|---|--|
| | Teaching others around me, when occasion arises, what they need to know. |
| | Teaching myself carefully. |
| School for Boys and Girls
(Upper—ages 11-13) | Similar to lower schools.
Teaching the group occasionally. |
| 4. Youth School
(Secondary—ages 14-17) | Similar to lower schools.
Helping younger children, in school and in community.
Teaching the group occasionally (especially for those who need to do so). |
| 5. School for Young Men and Women
(College—ages 18-21) | Similar to lower schools.
Teaching children in home, neighborhood, and community when they need it.
Occasional teaching of groups (for those who need it). |
| 6. School for Men and Women
(University—age 22-) | Teaching to contemporaries and colleagues gains made in own work. |

9

ENERGIZING

(Since this area is religious in nature, it must be treated sketchily and generally, due to current religious disunity and the opposition of materialistic science.)

1. Children's Beginning School
(Primary—ages 5-7) Saying grace before meals. (Imitative level.)
Saying prayers. (Imitative behavior.)
2. Children's School
(Intermediate—ages 8-10) Customary exercising (degree of participation not clear and varies much in terms of age and background). School and home *must not conflict*.
3. School for Boys and Girls
(Upper—ages 11-13) Customary exercises accompanied by questioning and tentative agreement or disagreement.
4. Youth School
(Secondary—ages 14-17) Acting on my own responsibility with respect to basically rejecting or accepting the totality of spiritual energy. School and home may conflict.
5. School for Young Men and Women
(College—ages 18-21) Working out in conduct the results of receiving spiritual energy.
6. School for Men and Women
(University—age 22-) Receiving spiritual energy and expressing it in dynamic living.

IO

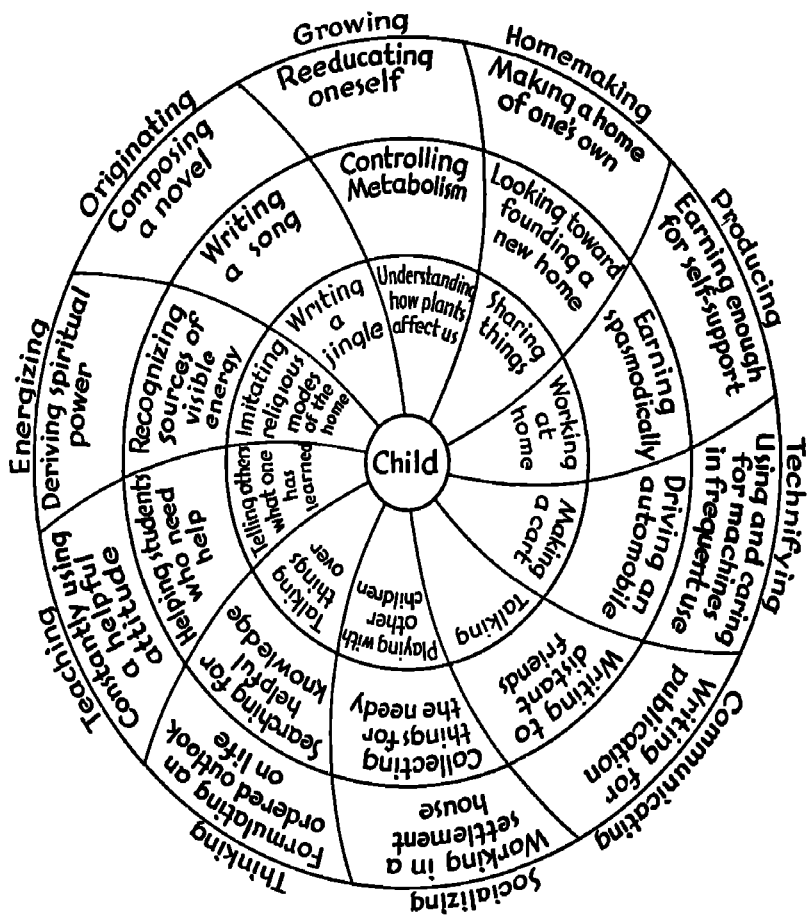
ORIGINATING

1. Children's Beginning School
(Primary—
ages 5-7) Making new things different
from things others make—for
example:
 Composing songs.
 Painting new pictures.
 Making new objects in clay.
 Making new stories or
 jingles.
2. Children's School
(Intermediate—
ages 8-10) Similar on a higher level.
3. School for Boys
and Girls
(Upper—ages
11-13) Similar on a higher level.
4. Youth School
(Secondary—
ages 14-17) Similar on a higher level.
 Practicing personal forms in cre-
 ative work.
 Writing stories, making amateur
 moving pictures, writing mu-
 sic.
5. School for Young
Men and Women
(College—ages
18-21) Using original abilities in writ-
ing, music, art, or in whatever
form the individual finds most
suitable.
 Writing a novel, a poem, a sym-
 phony.

6. School for Men Developing original abilities on
and Women the highest level.
(University—
age 22-)

The accompanying cyclical diagram indicates the type of internally related development which the teacher or curriculum worker must visualize when attempting to write a series of curriculum goals suitable for a specific group of children. The worker should keep in mind the nature of the good goal, and the criteria of suitability set forth in Chapter V. He should then attempt to locate a cycle of maturity with respect to each of the ten modes of acting which is that of the group of children, or the individual child with whom he expects to work. Each of the ten modes of conduct: growing, homemaking, producing, technifying, communicating, socializing, thinking, teaching, energizing, and originating, may be placed on a separate sheet of paper. On each sheet the examples set forth in this book may be listed as a guide. Things which pupils of the age concerned need to do are listed under the heading of the mode of activity under which they should appear. The lists may then be compiled consecutively and will appear in some extended form such as the following. In the following lists the same goals suggested previously have been *rearranged* in such a way that they give a brief picture of the basic goals for work on the various levels of school experience.

Once the list of goals has been satisfactorily made it is not necessary to maintain the headings which compose the ten divisions under which they have been listed. To do so is to tempt the teacher to organize the school day in



Inner Circle - Child Level
 Middle Circle - Youth Level
 Outer Circle - Adult Level

Chart Indicating by Examples the Structure of Curriculum

terms of this sequence. True conduct goals may remain undifferentiated in terms of the headings under which they fall. This frees the teacher from the onus of an unnatural method. In accordance with such a plan the teacher may proceed with her pupils in terms of an activity program. In the group activities may be developed which are such as to lead to the goals indicated in the curriculum.

FINAL FORM FOR WRITTEN CURRICULUM

Although the same examples just given are presented again in this second listing, they are given in the form in which they may be conveniently arranged for reference in teaching.

1

CHILDREN'S BEGINNING SCHOOL

N.B. This is a series of examples, not a complete curriculum. (Children should not be made conscious of defined classifications such as the ten modes of activity, nor should the school day be divided into periods on this basis.)

1. GROWING

Eating what is good to
make me grow well, e.g.,
milk.

Sleeping the amount desirable to make me grow well.

Playing in the way desirable to make me grow well, e.g., not getting my feet wet.

2. HOMEMAKING

Doing my part in house-keeping, e.g., dressing myself.

Doing my part in helping my family live well, e.g., showing pleasure when I am pleased.

3. PRODUCING

Helping those who are working in the family.
Dramatizing in school work done by grown-ups.

4. TECHNIFYING

Making objects needed by myself and others—objects of cardboard, wood, *papier mâché*, metal, clay.

Building with large and small blocks.

Operating toys.

Caring for toys.

5. COMMUNICATING

Talking so that others can understand what I say.

Telling stories that others want to listen to.

Reading what others write (in terms of pupil's level of maturity).

Writing what I want others to read—signs, notices, notes.

Singing by myself.

Singing with others.

Playing on a block flute or xylophone.

6. SOCIALIZING

Playing with others.

7. THINKING

($\frac{1}{6}$ of the school day)

Thinking about what I do.
(This means thinking and talking about all the activities engaged in under the ten modes. Teacher should focus this goal on improvement in all the modes of activity.)

Making trips out to observe the neighborhood.

8. TEACHING

Showing others what I know will help them.

Teaching myself what I can learn by myself.

9. ENERGIZING

(See notes on this mode
on page 183.)

Saying grace before meals
(Imitative level).

Saying prayers (Imitative
behavior).

10. ORIGINATING

Making new things differ-
ent from things made by
others, e.g., composing
new songs, painting pic-
tures, making new ob-
jects in clay, telling
original stories.

2

CHILDREN'S SCHOOL

(Elementary Intermediate—ages 8-10)

1. GROWING

Behaving in such a way as
to make me grow well,
e.g., not getting angry,
not being afraid.

Bringing my eating habits
under my control, e.g.,
eating slowly, and in a
way not to displease
those around me.

Bringing my sleeping habits under control—going to bed at the time I decide upon in terms of scientific standards and family agreement.

Dramatizing health habits in school—eating and sleeping.

2. HOMEMAKING

Taking over regularly some share of the house-keeping at home and in school.

Doing something for other members of the family and of the class.

3. PRODUCING

Definitely and regularly helping members of the family in some aspect of their productive work, e.g., keeping a desk including stationery and postage stamps tidy and in order.

Dramatizing in school some forms of productive work.

Carrying on in school some form of productive work such as making

Christmas cards for others to use or for sale.

4. TECHNIFYING

Making objects needed by myself and others (higher level of performance than in lower school)—objects of cardboard, wood, *papier mâché*, metal, clay, e.g., making a sled.

Operating and caring for machines—a toy railway, a lathe, a typewriter.

5. COMMUNICATING

Writing bulletin announcements.

Writing letters so that others can read them.

Speaking aloud so that I can be understood.

Writing on the wall newspaper.

6. SOCIALIZING

Working for the good of classmates or schoolmates, e.g., making inquiries, collecting information, or securing materials in out-of-school time.

7. THINKING

($\frac{1}{4}$ of school day)

Thinking about what I do. (This means thinking and talking about all the activities engaged upon under the ten modes.)

Seeing the things around me.

Finding out about the things around me.

Making trips to places which specially interest me—ships, parks, museums, factories.

Asking thoughtful questions about myself and the things I do and see.

8. TEACHING

Giving definite time to teaching others what I know especially well.

Teaching others around me when occasion arises what they need to know.

Teaching myself carefully.

9. ENERGIZING

(See notes on this mode on page 183.)

Suitable exercises (degree of participation not

clear, varies much in age of individual and background. School and home must never conflict).

10. ORIGINATING

Making new things different from those of others (on a higher level than in lower school), e.g., composing songs, painting pictures, making new objects in clay, making new stories.

3

SCHOOL FOR BOYS AND GIRLS

(Elementary Upper Grades—ages 11-13)

1. GROWING

Mastering skills in desirable games such as swimming, tennis.

Bringing my body under my own control, e.g., in general skills, such as walking, standing, and in special skills such as piano playing.

2. HOMEMAKING

Caring for my own per-

sonal affairs in the home
—for example, keeping
my own bedroom tidy,
collecting soiled linen.

3. PRODUCING

Carrying on productive
work—keeping a gar-
den.

Making a serious attempt
to help others of the
home and the school.

Assisting in upkeep of
the school plant and
grounds, e.g., raking
leaves, tidying class-
rooms, emptying waste-
paper baskets.

4. TECHNIFYING

Making complex and skill-
fully finished objects of
many diverse materials,
e.g., an aquarium for
tropical fish, a radio.

Operating, caring for and
repairing machines en-
countered by me fre-
quently. Driving an
automobile.

5. COMMUNICATING

Speaking aloud to groups.
Writing and publishing a
class newspaper.

Playing on a musical instrument—piano, violin, marimba, cornet.

Singing by myself and with others (higher level).

6. SOCIALIZING

Contributing to community life through services of Boy Scout Organization, Safety Patrols, Big Brother Organizations.

7. THINKING

($\frac{1}{3}$ of school day)

Getting an orderly outlook upon the world around me. Preliminary recognition of the five sciences.

Getting an orderly outlook on my ways of action—a preliminary familiarity with the ten modes of behaving. (See notes on thinking on page 181.)

8. TEACHING

Same as lower schools, e.g., giving definite time to teaching others what I know especially well.

Teaching others around me when occasion arises.
Teaching myself carefully.

9. ENERGIZING

(See note on this mode on page 183.)

Suitable exercises accompanied by questioning and tentative agreement or disagreement.

10. ORIGINATING

Making new things different from those made by others (on a higher level of accomplishment than in lower schools), e.g., composing songs, painting pictures, making new objects in clay, making new stories.

4

YOUTH SCHOOL

(Secondary School—ages 14-17)

1. GROWING

Avoiding sickness.
Taking over complete control of my own health.

Living life in a healthy balance.

2. HOMEMAKING

Automatically living upon an adult level in matters of homemaking.

3. PRODUCING

Similar activities in productive work to those of the lower school but on a higher level.

Engage spasmodically in some productive work for pay.

Carry on practice in vocational work (for students who expect to enter a vocation without going to higher schools).

4. TECHNIFYING

Making very complex and skillfully finished objects of many diverse materials, e.g., a motor, a glider.

Operating, caring for and repairing elaborate machines such as an airplane.

5. COMMUNICATING

Similar to lower level schools, but a higher degree of attainment. Speaking to groups, writing and publishing articles and booklets, playing skillfully on some musical instrument, singing individually or in chorus.

Writing for the school magazine.

Writing an account of investigations.

6. SOCIALIZING

Assisting co-operatively in the work of social agencies, e.g., distributing goods, making surveys.

7. THINKING

($\frac{1}{2}$ of school day)

Getting an organized mastery of the field of knowledge. (See page 88.)

Taking training in techniques of securing knowledge and gaining mastery of the instruments of knowledge, such as microscopes,

readers' indices, location of library materials.

Making preliminary researches in fields explored by others. Practicing research methods.

Observing and reading widely.

Experimenting.

Getting training in a vocation (for those who will not attend a higher school). (See note on thinking, page 181.)

8. TEACHING

Similar to lower schools.

Giving definite time to teaching: teaching others around me, teaching myself.

Teaching children in the home, neighborhood, and community whenever they come for help or when they need it.

9. ENERGIZING

(See note on this mode on page 183.)

Acting on my own responsibility in basically accepting or rejecting spiritual energy.

10. ORIGINATING

Similar to lower schools
but on a higher level.

Making new things in
the field of art, literature,
music.

Practicing personal forms
in chosen types of creative
work.

Writing stories, making
amateur moving pictures,
writing music.

5

SCHOOL FOR YOUNG MEN AND WOMEN

(College—ages 18-21)

1. GROWING

Habitual mastering of
health and personal
health habits.

Exercising in a suitable
fashion.

2. HOMEMAKING

Forming a wise personal
course of behavior with
respect to forming a
new home.

Taking an adult's part in
home responsibilities
and privileges.

3. PRODUCING

Taking mature responsibilities with respect to productive work.

Engaging regularly in some form of productive work for pay.

Carrying on vocational practice if vocational choice has been made.

4. TECHNIFYING

Operating and caring for machines to the extent necessary in terms of one's specially developed abilities.

Operating and caring for all machines and tools encountered in daily life.

Aiding in such community work as building a school community and its buildings in some rural area.

Using skillfully technical aids in experiment and research, e.g., microphotography, operation and care of telescope.

5. COMMUNICATING

Pamphleteering.

Writing articles for current publications.

Writing for college publications.

Publishing what one writes.

6. SOCIALIZING

Working in social settlements without pay.

Leading groups.

Acting as scoutmaster for Boy Scout troops.

Doing church work.

Doing Red Cross work.

Observing political meetings and rallies.

Observing ward politics in action.

Dramatizing political action in college student organizations.

7. THINKING

($\frac{3}{5}$ of school day)

Doing original work in fields personally significant. Reading and studying based on personal interest and research.

Development of personal research technique.

Vocational training for those not going to higher school. (See note on thinking on page 181.)

8. TEACHING

Studying children and their ways of learning.

Visiting schools and analyzing their various characteristics.

Teaching children in home, neighborhood, and community in a careful and skillful fashion.

Occasional teaching of groups in a skillful manner.

Lecturing in an interesting and skillful manner.

9. ENERGIZING

(See note on this mode on page 183.)

Working out in conduct the results of receiving or doing without spiritual energy.

10. ORIGINATING

Using original abilities in writing music, in art or

literature, or in whatever form the individual has found most suitable to his particular nature. Writing a novel, a poem, a symphony, a fugue. Scholarship in new forms.

6

SCHOOL FOR MEN AND WOMEN

1. GROWING

Living the bodily life correctly on an automatic and unconscious level.

2. HOMEMAKING

Taking an adult's part in the responsibilities and privileges of the home in which one lives.

Following a wise personal course of behavior with respect to forming a new home.

3. PRODUCING

Engaging as occasion allows in some form of productive work for pay.

Engaging in vocational practice for pay.

4. TECHNIFYING

Operating and caring for machines encountered in daily life.

Using skillfully all technical materials used in personal research.

Using and inventing machines and technical aids for vocational and technical needs.

5. COMMUNICATING

Giving lectures on recent investigations and research.

Publishing books and booklets.

Publishing articles and accounts of study and research.

6. SOCIALIZING

Contributing to social welfare by direct service to social organizations and by financial contribution.

Engaging in political action as a private individual.

Engaging in the work of agencies for social and political guidance and reform.

7. THINKING

($\frac{4}{5}$ of school day)

Contributing to knowledge.

Mastering elaborate techniques of research and nature of research.

Development of personal research techniques.

Carefully planning bibliography of personally significant reading.

Reading and study of personal bibliography.

Discovering and studying unusual and remote points of view.

Working out the bearings of the newest knowledge on aspects of future cultural changes. (See note on thinking, page 181.)

8. TEACHING

Accepting community responsibilities in teaching daily companions, children or adults.

Teaching to contemporaries and colleagues gains made in own work.

9. ENERGIZING

(See note on this mode on page 183.)

Receiving spiritual energy and expressing it in dynamic living.

10. ORIGINATING

Developing personal original abilities on the highest level.

There are some who will be troubled by the non-appearance in the lower grades of such goals as *doing arithmetic*. This lack is deliberate and desirable. Doing arithmetic is not a life activity, but an abstraction from life. In such cases, which occur in matters of geography and history also, no alarm need be shown. The goals which involve the materials which are missed occur in another form. *Keeping track of my own money, measuring things, giving and getting correct change* are goals which every individual will want. Thinking about them soon leads to the necessity of setting aside special time for drill in the figuring needed for their successful development. Similarly in order to find where the ships and trains go we must use maps, and only history can tell us where the Indians we see actually came from. Conduct goals ultimately involve subject matter.

TRUE CURRICULUM INVOLVES KNOWLEDGE, BUT WRITTEN CURRICULUM ONLY IMPLIES IT

Some words should be written to clarify the relationships between knowledge and curriculum. Knowledge is in a sense a part of the curriculum. But it should never be an expressed part of written curriculum. When curriculum is written down it should be written only in terms of process goals, which are in the active mood. They will thus not involve knowledge in statement form, but only in implied form. Thus such a curriculum goal as *writing a book* will not express but will imply knowledge.

In its fullest sense curriculum can never be written curriculum. True curriculum is the experiences which learners actually pass through in the course of learning. Thus true curriculum implies much more than written curriculum. It implies in addition an orderly world surrounding the individual and a teacher whose education has enabled him to understand that world. It implies a teacher full of knowledge, and full of true knowledge of the world in which we live. It implies an educated teacher. Knowledge is a function of the teacher, not of the written curriculum. An educated teacher should produce a truly educated pupil. Written curriculum merely implies knowledge, but true and full curriculum includes the active search for and mastery of true knowledge of the world. Knowledge is not merely the knowledge of the teacher, but the knowledge of a myriad books and knowledge of the people we meet wherever we meet them. Consequently a paradox is explained. True curriculum

is much concerned with knowledge, and with educated teachers. But written curriculum does not state but merely implies knowledge.

EXAMPLE RELATING PUPIL, ACTIVITY, AND GOAL

Although this subject has been treated at length elsewhere,² an example relating pupil, activity, and goal will be given here.

Under the mode of *Communicating*, all human beings in our society today write letters. Thus a desirable goal for each individual is certain to be that of *writing a letter*. While it is not possible to say at just what time in the life of an individual child he will wish or need to write a letter, it is clear from experience that this will occur some time within the child's life in the Beginning Children's School, the first three grades of the current Elementary School. The expectation based on teachers' experience is that this goal will be reached in the second grade. Thus the curriculum goal is determined, and roughly and flexibly placed. The teacher, during the process of teaching, is concerned with three factors: the curriculum goal, the child, and the activity by which he attains that goal.

The Specific	Activities by means of	The Goal
Child	which he reaches the goal	

The specific child is a real child. He is not a general child, but a particular child. He does not mature to a given learning experience at some fixed moment which is the same for all children, but at a time and in a way which is

² Melvin, A. Gordon. *The Activity Program*. The John Day Company, New York.

in terms of his own personality. Thus the teacher must know the individual child as her earliest task of class teaching. The teacher also knows the goal—writing a letter. Both child and goal are specific and definite. But the activities by means of which the child reaches out to the goal are not fixed or definite. They may be different for different children and for different groups of children. This is the area of the activity program, which varies from class to class and individual to individual. Consequently, while the child and the curriculum are specific and definite, the activities vary. Thus one child may reach this goal of *writing a letter* because his uncle has written him a letter from a near-by city. Another child may reach the goal by writing a brief note to post in the mailbox placed in the classroom by the teacher, by means of which notes may be sent to other members of the class. These beginning steps in letter writing lead to discussion of the activity and so to the writing of further letters, and the improvement of handwriting, spelling, and punctuation, as letter-writing is mastered on a maturer level. It is clear, however, from this example, that the teacher is concerned with three aspects of method: the child, the activity program, and the curriculum. This is true, not merely in the case of this present example, but in the case of all goals and all children. The child is specific, the goal is definite, but the activity program is varied and flexible, and is couched in terms of the maturity of the child and the experiences through which he is living at the time of learning.

It is particularly important to avoid one pitfall which has been a trouble to many teachers. This is the confusion between the activities which occur under the nine general

modes of activity with those which occur under the seventh mode, the special mode of thinking, which is a special concern of human beings and so of the school. This single activity is in some sense co-ordinate with the other nine, for in thinking we dramatize action. One may thus make a table or think about making a table. Teachers frequently confuse the two. It is undesirable to make a table without thinking about it, or to think about making a table without making one. Making a table is acting. Thinking about making a table is acting. But the purpose of thinking about making a table is to make a good table. Thus under mode seven of thinking, teachers should be careful to see that the thinking which is done is such as will make acting on a better level possible. The other nine modes of conduct are, then, the media through which the thinking is fulfilled. It is, therefore, entirely inadequate to carry on education in terms of mode seven, thinking, and in terms of this mode alone. All ten modes of acting are necessary to a balanced school life. The teacher must never confuse those activities which come under the mode of thinking with the whole of school life. This is too often done. Thinking about arithmetic is not sound unless measuring and counting and computation go on under the other modes of activity. Spelling is not spelling unless in addition to learning it we use it. There must therefore be lengthy periods of school life which are given over to study, thinking, talking, discussing, listening; but those activities must not monopolize the whole school day, nor can they be safely indulged in unless that which is taught and talked about is practiced in some applied form in the remainder of the pupil's life. We think ahead of

**Typical Activities of Children in an Activity Program in Public School
155, Brooklyn**



performance at our own peril, unless thinking is followed by performance.

Nowhere is this more important than in the area of energizing. This is a much misunderstood area. It is religious in nature, and involves the receiving of life power in a direct and special way by voluntary recognition and acceptance of those religious realities which provide power and energy of a spiritual nature. Here is the test of religions. That which provides power for right living is valid. That which lays out commands and rules without providing the energy for their fulfillment is inadequate. If religion cannot supply spiritual power it is superfluous. Consequently, thinking and talking about religion and power beyond application in performance is dangerous. It leads men to substitute thinking and emotion for action, to the stultification of their own being.

It has been necessary to deal with this question of energizing in this book in order to present the complete round of human activities. Since the writer dislikes controversy, he would prefer to leave it alone. The subject is, however, extremely vital and essential to an understanding of the whole area of human activity. The activities which it involves are matters for the serious action of home and church. In this direct sense of those activities which are of this special nature they are not a concern of the public school. But in the sense of their effect upon all the acts engaged upon under the other nine modes of activity, they definitely affect the life of all schools. For the degree of the fullness of life which individuals exhibit in the general activities of life finds its origin in the sources of spiritual power which they tap. All teachers can observe marked differences among their pupils in this respect. There are

some few who are like living dynamos, who pour forth upon the community around them a veritable shower of human life. The great mass of the pupils, however, sit comparatively inert, subject only to the stimulus of passing motivations, emotions, or excitement. The origin of their ailment should be recognized even when public school teachers can do nothing direct about it. Those who are in homes, churches, or private schools can know where lies the spark of being. If they know how to do so, they can put their pupils in touch with the source of power which they know in their own being. For probably no man can receive it except through the mediation of another. The schools and the world are full of dead people who spend away their sparse energies, never troubling to replenish them. They eat daily bread for the body, but none for the spirit.

CHAPTER XV

THE REORGANIZATION OF KNOWLEDGE

THE Western world is seriously in need of some thorough reorganization of knowledge. The foundations of knowledge as laid down by the Greeks and typified by the name of Aristotle, are worn thin with use. They served their day, but they cannot serve ours. Seers for generations have expressed their impatience at a scholarship and a learning tainted with the common frailties of man. None has done so more sharply than Blake, who brought the unholy alliances of materialistic learning into the court of his violent satire. He berated the ill-inspired hack-saw surgery of his day in merciless words.

“And as he ran to seek his mother
He met with a dead woman
He fell in love and married her—
A deed which is not common.

“She soon grew pregnant, and brought forth
Scurvy and Spotted Fever,
The father grinn’d and skipt about,
And said ‘I’m made forever!

“ ‘For now I have procur’d these imps
I’ll try experiments.’
With that he tied poor Scurvy down,
And stopt up all its vents.

"And when the child began to swell
He shouted out aloud—
'I've found the dropsy out, and soon
Shall do the world more good.'

"He took up Fever by the neck,
And cut out all its spots;
And, through the holes which he had made,
He first discover'd guts."

Such a rebuke is merited not by surgery alone today, but by all that false "pragmatic" science which chains man to his own body, and makes him the servant of his own lust. There is a scholarship today which decays and rots around us, turning the halls of learning into a charnal house of dead ideologies. Civilization too must decay around us, unless a new scholarship can arise—living, dynamic, energy-releasing, original, creative, spiritual.

THE FUNCTIONAL REORGANIZATION OF KNOWLEDGE

The outline of knowledge which has been developed in this book provides a working basis for the complete reorganization of knowledge on a functional basis. The following brief organization of knowledge is a presentation of the material which has been set forth earlier in this book.

It should be observed that the organization of knowledge as here presented takes its rise through the seventh mode of human activity, thinking. Thus the activity of thinking appears twice on the list. It is found in its proper place as the seventh mode of activity through

Thinking— Five Sciences	{	Living <i>Energies</i> act in	{	1. Original energizing
			{	2. Applied energizing
		Living <i>Earths</i> act by	{	1. Capturing energy
			{	2. Expressing force
			{	3. Changing form
			{	4. Carrying force
		Living <i>Plants</i> act by	{	1. Transforming light
			{	2. Transforming earths
		Living <i>Animals</i> act by	{	1. Transforming plant energy
			{	2. Working
		Living <i>Men</i> act by	{	1. Growing
			{	2. Homemaking
			{	3. Producing
			{	4. Technifying
			{	5. Communicating
			{	6. Socializing
			{	7. Thinking
			{	8. Teaching
			{	9. Energizing
			{	10. Originating

which men express themselves, and again at the starting point for the development of knowledge. Thus is established a set of internal relationships which indicate the active nature of the whole. For thinking is that mode of activity through which knowledge itself must be approached. In its turn it nourishes thinking itself. So an active state of affairs is maintained, by virtue of which true progress and development can be made.

The simplicity of the whole arrangement may be misleading. There is a tradition among the learned that learning is obscure. The truth of the matter is quite the opposite. "Nature," says Emerson, "is an endless combination and repetition of a very few laws." True learning, if unobscured by pedantry and the confusion of the "scholarly" mind, should be as simple and clear as light itself. In its basic outlines it should be obvious and capable of being understood by the young and the untrained. Even in its complexities it is simple. From simple beginnings natural things mingle together in the unexampled richness and subtle beauties of nature, yet perfect order reigns, and what is complex is redeemed by its supreme orderliness, by the rhythmic perfection of natural law. Thus it is that day unto day uttereth speech and night unto night showeth knowledge.

CURRENT TERMINOLOGY IS UNSATISFACTORY

In setting forth such an organization of the bases of knowledge, serious dilemmas of terminology occur. The whole question of naming becomes extremely troublesome. For just as static concepts have crept into our scholarship and molded our knowledge, so our very language

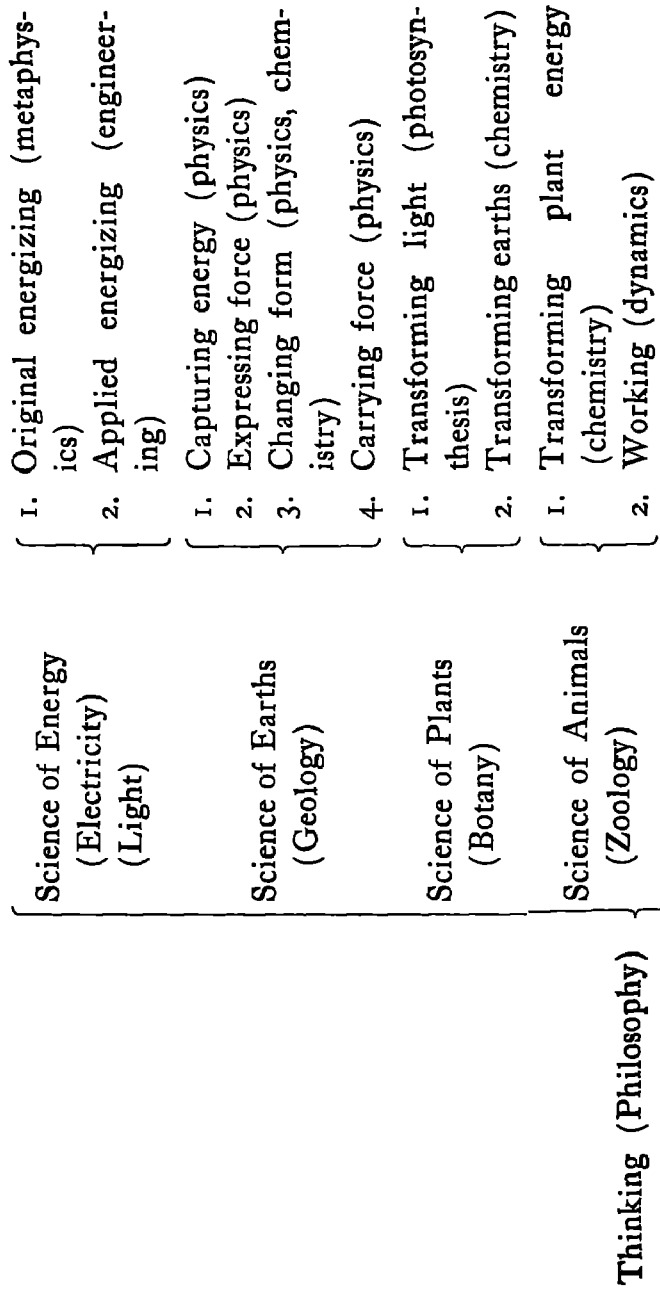
itself has become set in terms which are static, and our familiar classifications so carefully named in terms of such wide currency stand in the way. But the chief difficulty is not with the old terms, for old terms drop away—witness the old classification of metaphysics into ontology, cosmology, anthroposophy, psychology, and pneumatology. These terms have, for the most part, disappeared from common use. The problem lies in the lack of new terms.

Unfortunately the terms of the organization of knowledge given here conflict seriously with current meanings and terminology. Any attempt to match the new terms with the old will be misleading. In actual practice the old terms should be discarded with the old concepts. Since this will not occur, it seems wise to attempt some matching of terms, not for the sake of identification of concepts, but to make the problem of checking possible. There are those who will wish to know that the old fields are adequately covered by the new, that nothing of value is lost, that the new scholarship suggested will not violate the knowledge of the old. Consequently, some rough matching of terms is attempted here. It should not be used as a basis for attempting to understand the newer organization, or serious confusion will result.

NEW KNOWLEDGE BRINGS NEW SUBJECT MATTER

New knowledge brings a new subject matter. For subject matter cannot disappear, or knowledge goes with it. It is the old subject matter which must pass—subject matter organized in a form now useless, outmoded. Mere

Chart to indicate some relationships between organization of knowledge as presented here and current forms:



Science of Men
 (Psychology)
 (Anthropology)
 (Education)
 (History)
 (Sociology)
 (Ethics)

1. Growing (metabolism)
2. Homemaking (genetics)
3. Producing (agriculture, commerce, business)
4. Communicating (transportation, commerce, economic journalism, grammar, rhetoric)
5. Socializing (social science, politics)
6. Technifying (technology)
7. Thinking (philosophy)
8. Teaching (education)
9. Energizing (religion)
10. Originating (the arts)

compilations of stuff aggregated in the hope that it might some day be useful. From it will pass on into the new subject matter all that is vital, all that is living, applicable, suitable, useful. It will be old wine in new bottles.

Certainly there will be no lack of subject matter, no lack of knowledge, if the ideas here set forth begin to be carried out. There will be to replace the old a copious and new, a more vital kind of subject matter organized according to new principles and adapted to the very modes of human activity. The curriculum will be no longer the dump heap of the ages. Rather will it direct the learner to a subject matter organized for the service of man in a form which will promote rather than hinder action.

THE NEW SUBJECT MATTER

In its essence the new subject matter will answer not the question, "What is it?" but it will answer the question, "What does it do?" The effect of such an approach to knowledge will be to alter the whole content of subject matter from its older and static form to a new and dynamic one. It will immediately become applicable to the affairs of men and the universe.

Criteria of action and reaction provide a practical basis upon which to evaluate the worth of phenomena. True knowledge is based upon knowledge of relationships and interaction. That knowledge which is most valuable to man is that which gives an understanding of the schematic relationships and interactions which exist between men and the three classes of beings which share their material existence. This is indicated in the following schematic chart:

<i>CHART FOR KNOWLEDGE</i>		Modes of Human Action									
		Growing	Homemaking	Producing	Technifying	Communicating	Socializing	Thinking	Teaching	Energizing	Originating
Energy	Earths										
	Plants										
	Animals										
	Men										

CHART FOR THE DEVELOPMENT OF KNOWLEDGE

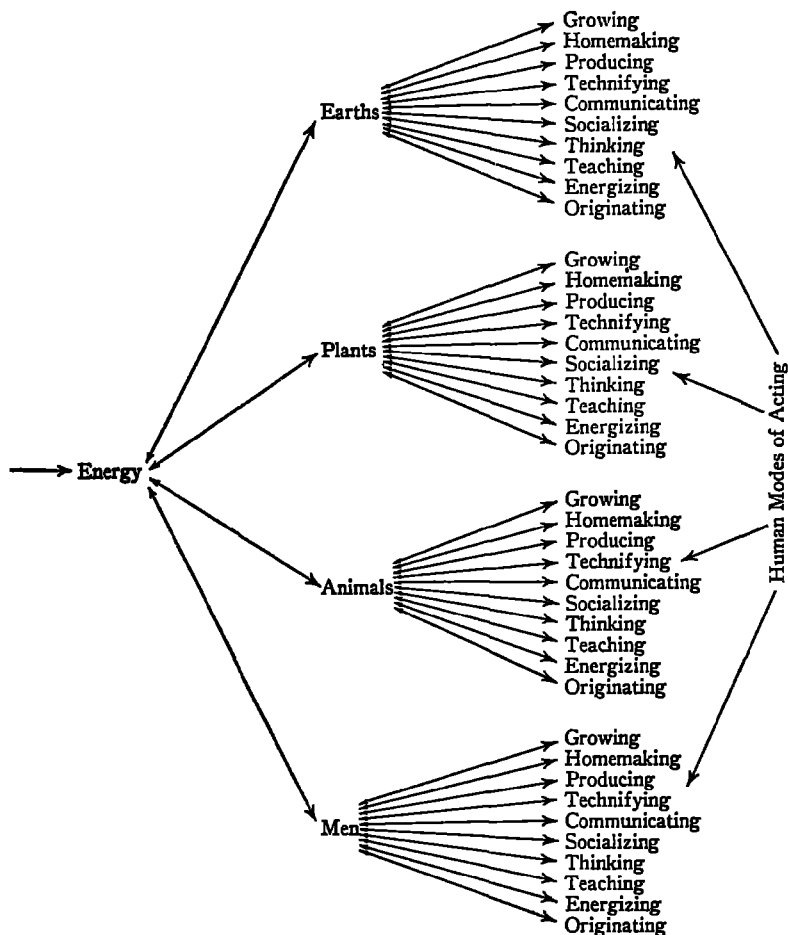
Each square represents an area of knowledge to be developed. True knowledge must be expressed in terms of relationship, action, and interaction.

Such a chart makes it possible to realize the nature of the development which should be followed by all the sciences or branches of knowledge. It reveals the trends which each science should follow if it is to come into the full and complete service of man and improve human living in every possible direction. The tracing through of the cross-relationships here indicated provides the following scheme for the development of true scientific knowledge. With respect to the following related areas, it is pertinent to ask what is the relationship, and what are the actions and reactions? Thus can we reach an understanding of what the universe is doing.

Thus are delineated the sub-areas of knowledge. From such an organization infinite complexities arise. The development of complex relationships is in the nature of life itself. But it is only by the dramatizing of such complexities, in some such fashion as this, that it is possible to indicate the true nature of living knowledge, and the extent to which it depends upon an understanding of the action of one aspect of being upon another.

What we wish to know about any being, or any class of beings, is just what action it is having upon human life. This will be somewhat clearer if an example is chosen from each of the five areas of knowledge. In the area of Energetics, light, one of the basic forms in which energy acts upon the material world, may be chosen as an example. How does light affect human conduct generally and how is it affecting it at present? It is clear that it has a most direct effect upon every one of the modes of human behavior, to an extent that cannot be pointed out here for lack of space. Light affects growing in the most important and direct ways—ways which are but poorly understood and inadequately controlled. A moment or so spent in pondering the effects of light upon the various modes of human behavior will indicate the functional nature of such knowledge. In the area of Earth Science one may choose as an example any common substance such as iron, or common salt. How is the action of the salt content of the globe affecting human conduct? In the plant area one might consider what trees are doing to the surface of the earth, and what effect they have on human affairs and on human life. How do such animals as the horse or the tiger affect the lives of men? How do our fellow beings affect us and one another? Can we identify

BASIC RELATIONSHIPS
INDICATING AREAS OF FUNCTIONAL KNOWLEDGE



This chart indicates relationships between the acting of human and other beings. Areas of knowledge are indicated not by the words but by the arrows relating them.

certain individuals who are antihuman? Are there groups of people who are working for the welfare of their fellow humans? Are the works of individual men constructive or destructive in their effects? The research they carry on, the music they write, the pictures they paint? Do these things further and better human life, or are they a drag upon it? Here in these various active problems of existence lie the very roots of knowledge, and on such subjects ten thousand useful works of research may be carried on, and as many useful volumes written. This is the new subject matter. This is the knowledge which can fertilize in a new way the works of men.

CHAPTER XVI

NEW CURRICULUM, NEW SOCIETY

ONLY a new curriculum can bring a new knowledge. Only new knowledge can bring a new school. Only a new school can bring a new society. A new curriculum is the key to a new culture. The world of today is filled with useless knowledge. History remembers what were better forgotten, and forgets what should be remembered. Whole systems of what was once considered knowledge have become outmoded. The Ptolemaic theory of the universe remains only a record for reference. The elaborate medieval counting system of Rabanus Maurus, which enabled one to count into the thousands by the positions of the fingers and arms, is useless today. Our shelves are full of books which are fuller still of those "knowledges" which are not and never will be significant knowledge. We have the wordy theories of countless philosophers, whose philosophies were but the outer reflection of their inability to deal simply and clearly with the universe. There are the lucubrations of symbolic logic, which is symbolic of nothing at all. In the mass pressure of nothingness, how shall we discriminate? How shall we avoid feeding the rising generation upon that which is not bread? Only by disciplining ourselves with a rigid firmness which can abandon sentimentality, can we turn from vitiated tradition and grasp that which is vital for today. Men must know what to know. Then they shall know what to do.

KNOWLEDGE IN THE ACTIVE MOOD

It is quite impossible to do any more than give a brief glimpse of the trend of the new knowledge. A fuller expansion of one or two of its minor aspects must be sufficient to serve as an illustration of its infinite possibilities, of the new horizons which it opens before us. The Science of Light, for example, one of the modes of energy, is but feebly understood by men.

The knowledge of this form of energy is not co-ordinated into one functional body of knowledge. It is scattered among a dozen sciences. Physics teaches us the speed of light and describes radiation; botany gives us glimpses of its actions upon plant life; chemistry informs us of its effects upon chemical reaction, and optics of the practical applications of light to the functioning of the eye. But there is no Science of Light itself, no fundamental recognition of light as a creative force, and no co-ordination of the scattered knowledge into a valuable useful whole.

THE SCIENCE OF LIGHT

A true understanding of Light would begin with a basic study of the spiritual and material sources of Light. What first cause was the original source of light, and to what extent is light mediated to us through the sun? The sun worship of the ancients and its meaning help us to understand the behavior of peoples. Much is to be learned from the modern form of sun worship in the Shintoism of Japan. Its effects on the modern world come into sharp focus. Into this picture comes the modern cult of nudism and the operation of its forces in the life around us. What

has been the effect of the changing knowledge of the sun upon human fashions and human costume?

The direct effect of the sun's rays on the human body is only partly understood. Great sun laboratories should be established in which competent research workers could study intensively and completely the but half-understood nature of light and its effect on human life. What research has already been carried out, holds high promise of reward and a new approach in the mastery of disease. The beneficial and creative effects of the sun, as well as its injurious effects, have become better understood. The much prized early morning rays have been recognized as especially healthful, while the less valuable character of the red rays, which increase toward the late afternoon, has been demonstrated. Considerable research work has been done upon the curative effects of sunlight and the value of certain combinations of rays which shine in a final blue has been indicated by certain recent studies.¹

The better understanding of the use of sunlight in agriculture in a new form of agricultural engineering will add to the possibilities of crop control. The proper control of sunlight in the raising of crops can relegate the haphazard farming methods of our forefathers into the class of primitive practices. The application of light engineering to homes would produce yet another revolution in building construction. With all our modern study of the problem of home building and in spite of the engineering developments in the modernistic home, human

¹ Chrapowicki, Maryla de, *Spectro-Biology, Light and Color Therapy*. The C. W. Daniel Company, Ltd., Forty Great Russell St., London, 1938. The book may be obtained from The Polish Book Importing Co., 38 Union Square, New York. This striking little volume contains much that is pertinent to the view of energy and light presented here.

beings have never yet troubled themselves to apply their engineering skill in any thorough way to the problems of lighting. Neither sunlight nor artificial light have been properly developed in their application to such matters. The sunlight has never been controlled. Thus we live in dark houses, dark apartments. We long for sunlight through the long winter months when every home could have its heated solarium with its contribution to individual and general health. Mere mirrors could reflect the sunlight into dark apartments. But such a simple device has never been used in turning our northern exposures into reflected sun rooms. A sanitarium in France has been so constructed that machinery moves the building in the path of the sun. Thus patients may get the full benefits of its healing rays. Such an idea (which I once saw employed in an architectural drawing made by a ten-year-old) has not yet been used in house construction by our sophisticated moderns. Only custom holds us back from the use of rotating houses which bring the sunlight into the room inhabited at any time of day. The use of the sun's heat and protection from it have all been treated in the most primitive fashion by man. The possibilities of interior illumination are in their infancy. Our rooms are not properly lighted by the sun in the day nor by the electric light in the night. The artistic possibilities of light have been almost entirely overlooked. The best we can display is the highly emotional and superb effect of the stained glass windows in the Cathedral of St. John the Divine in New York, in which the medieval technique has been imitated. Occasional use is now being made of colored light in landscape decoration. Niagara Falls with the colored-light illumination provides a somewhat prim-

itive experiment along these lines. Showmanship is making efforts toward striking effects at modern Fairs. But the possibilities of light sculpture, in which decorative effects of light are used as a substitute for more customary types of decoration, are still a challenge to any artist who inclines toward the modern.

The Science of Light is still to be thoroughly explored and co-ordinated. But so it is with literally thousands of the everyday phenomena which we see around us. Education has provided us with collections of information which he who could might apply. But in these modern days it is impossible to be encyclopedic. To trace down what information is pertinent to any given form of activity is almost impossible. For our knowledge has not been organized in terms of action. It has not been compiled in a form which maintains its co-ordination with the deeds of men. Thus the deposits of knowledge which we own are out of control. No man can marshal what he should know upon any given task. All this should be changed. Thinkers must think through the relationships which exist between knowledge and activity. By thus placing knowledge in its relationships to action, they will rearrange it so that its very structure will aid and suggest action. According to the old system, each man was compelled to think out the bearing of scattered knowledge to the action he was taking. Consequently much was overlooked. The maker of an automobile, not knowing how metals behave, has to experiment with many metals to look for those suitable to the improvements he has in mind. If the action of all metals were known it would be a comparatively short task to identify the type of metal needed for every use and to discover new alloys to meet new needs. For the func-

tional arrangement of knowledge, the classification of knowledge in terms of action, establishes those relationships which will be needed by a million men. It casts knowledge into the form in which it can forward human good, if used by good men for the welfare of man.

WATER IN THE SERVICE OF MAN

One further example of the way in which functional knowledge may be organized will be useful in estimating its significance. In the simple observation of surrounding nature the substance *water* stands as something which behaves in its own distinctive fashion. The traditional scientific attitude toward water was merely to describe it. Witness the following quotation on water from a good standard textbook.

“Physical Properties of Water.—Pure water is an odorless liquid. Small quantities appear to be colorless, although large masses show a distinct blue color. Water is usually taken as the standard in comparisons of physical properties of liquids and solids. The zero of the Centigrade thermometer registers the position of the top of the mercury column when the thermometer is placed in melting ice, and, since a pure substance on being warmed always melts at the same temperature as that at which it would solidify if cooled, the zero of the Centigrade thermometer is the freezing point of water.

“When pure water is heated to 100° C. under a pressure of 760 mm. it boils; if we continue to apply heat, the temperature does not rise higher, provided the steam is allowed to escape. The heat used in converting water into steam is known as the *heat of vaporization*, or the latent heat of steam; it is given off when the steam con-

denses. The heat used in changing ice to water is known as the *heat of fusion*. This is also latent heat, as it is given off when water changes back to ice.”²

The passage continues in similar fashion to present materials of the same type concerning distillation, steam, ice, solution, saturation, relation of solubility to temperature and pressure.

How different is a functional account of water. Such a description is almost romantic. A thorough study of water in its permanent and temporary bearing on the life of man is a subject worthy of special research and of a volume in itself. The analysis made here is merely intended as a brief sample of the new kind of understanding which the true scientific approach would bring concerning all things about us.

Water is one of those remarkable substances which is eminently necessary to make this planet suitable as a dwelling place for man. Its peculiar behavior and its presence in large quantities in the oceans, lakes, and rivers; its evaporation into the atmosphere; and its precipitation in rain continually affect human life. Scientifically speaking, it exhibits several modes of behavior. These may be listed as follows:

1. Aiding in Human Metabolism
2. Washing
3. Flowing
4. Dissolving
5. Evaporating and Freezing at Ordinary Temperature
6. Slow Change of Temperature

² Brownlee and others. *Chemistry*. Allyn and Bacon, New York, p. 41. Reprinted by permission of authors and publisher.

1. Aiding in Human Metabolism

Water quenches the thirst, and so is craved by man. It passes into the system and by virtue of its peculiar properties of dissolving numerous substances it provides a medium for cell growth and the various processes of metabolism. We might go so far as to say that every man is a man in solution.

2. Washing

All humanity is washed with water. It provides the ceremonial washing of the Brahmins of India. The Singalese of Ceylon wash themselves daily with scrupulous regularity, pouring vessel after vessel of water over their heads and brown bodies. In the West it is the medium of our daily ablutions. Water washes the borders of the whole earth wherever its mighty oceans lap the shores. It dislodges the fine particles of earthy substances and dissolves away that which is soluble so that our clothes and our persons themselves are clean only through water.

3. Flowing

The flow of water carries its currents in regular bands about the oceans and facilitates its tumbling movements in rivers, falls, and whirlpools about the whole world. This flowing quality, in virtue of which water adapts itself to pressures in every direction, endows it with peculiar properties which fit it for the service of man. It is harnessed in great hydro-electric plants, and serves its hydraulic purposes in the great steamship locks of the world. The Japan current in the West of America glorifies the climate of such cities as Vancouver and Seattle. In

the East the Labrador current maintains Nova Scotia and Maine as the vacation lands of America. The flowing of water in endless abundance is like the very blood circulation of the earth.

4. Dissolving

The power of water to dissolve is striking. Among known chemical substances it is unique in its powers and methods of solution. On this characteristic depends its use in metabolizing and washing. The salt taste of the ocean teaches one a clear lesson of the continual working of its solvent powers over the face of the globe. Startling is its peculiar quality of carrying in solution small quantities of carbon dioxide, which, by making it a mild acid, facilitate its solvent powers. Its service in the maintaining of the carbon dioxide balance of the atmosphere enables it to perform one more essential service for man. Without its stabilizing powers we should be without the carbon dioxide cycle essential to the very life of men, plants, and animals.

5. Evaporating and Freezing

The qualities of the snow and ice can be a boon to man. The flexibility of water, in virtue of which it passes through every change of state, solid to liquid, liquid to gas, and back again at ordinary temperatures, makes it a daily actor in the drama of life. In its solid state it comes as snow on the mountains and as glaciers in the North, locking the earth during the winter and flooding it freshly in the spring. It holds the Arctic in an icy thrall. Its almost daily rains make of Ceylon a tropical paradise. Evaporation keeps the oceans in balance and maintains

the water cycle of rain, rivers, oceans, and fogs. Its easily attained boiling temperature serves us to cook our daily food, its easily reached freezing point enables us to cool our summer beverages. Altogether the rapid changes of state which water undergoes at ordinary temperatures is indispensable not merely to our comfort but to our very life.

6. Slow Change of Temperature

The slow changes of temperature of water and its characteristic of latent heat which affects its melting and boiling, preserve the earth at a suitable temperature for man. The huge bodies of water in the ocean, which to the superficial eye seem wasteful and troublesome, when understood are revealed as the saviors of human life. Thus it is that when studied and understood everything which exists has a peculiar and interlocking function which makes of this world one co-operating integument of essential energies and beings. If it be pursued with inflexible integrity and with unblinded sight, true science can reveal this function and can provide a true understanding of the universe. The quick changes of temperature to which the surface of the earth is subjected are kept in check by the stabilizing effect of large bodies of water. The water warms our surface in winter and cools it in summer. Thus, as the great temperature stabilizer of the globe, it protects humanity from those extremes of temperature which would otherwise make this world uninhabitable.

From such a simple study of water, for the incompleteness of which it is necessary to apologize, two obvious modes of learning result: the practical or material, and the spiritual. This is true of all natural objects but they

must be so regarded if these values are to be revealed. The practical value to be obtained from such a study of water is obvious to all. By such an understanding we realize the great value of water to the human race. Water can, if thus understood, never be treated lightly. Its importance in metabolism indicates the absolute necessity for purity of drinking water. Such an understanding can teach all communities to take the utmost care of the water supply. It makes obvious the importance of drinking only pure water. It also shows us how the waters of the world can be harnessed for the service of man. Careful studies of the applications of the peculiar qualities of water to the needs of mankind cannot fail, even in the case of this familiar substance, to reveal new applications of its qualities to the service of men.

Men are peculiarly unadapted by the trends of modern cultures to observe spiritual significance in events or objects. In the first place, the very efficiency of the planetary arrangement and uses of the qualities of water to further human life are an indication of fundamental design in the universe. In the second place, the symbolic meaning of water is used over and over again as a vehicle of spiritual truth. The Bible is full of interpretations of the spiritual meaning of water which correspond very largely to its functions as listed above. This will be obvious to the reader who will consider some of the functions of water as listed above along with the following quotations in which that function is identified as a medium of spiritual teaching.

1. Metabolizing—"Whosoever drinketh of the water I shall give him shall never thirst."^a 2. Washing—"That

^a John 4: 14.

he might sanctify and cleanse it (the Church) with the washing of water.”⁴ 3. Flowing—“And he shewed me a pure river of the water of life, clear as crystal, proceeding out of the throne of God.”⁵ Thus on the spiritual level water teaches of the meeting of spiritual needs, of spiritual cleansing, and of abundance of spiritual help.

Such a deeper interpretation of the affairs of nature is most uncustomary. It provides an almost untouched field for those who care to seek evidence of life on any other than a material and materially practical level. I include it on account of the insistence of my students who inquire concerning the meaning of evidence and experience on a level other than the material. They are unaccustomed to observe symbolic teaching in which nature and the greatest of literature and art abound in measureless richness.⁶

FUNCTIONAL KNOWLEDGE ON HIGHER LEVELS

It is, of course, simpler to provide examples of functionally organized knowledge from the concrete and material realm. Some years must pass before clear applications of functional thinking to the realms of human action can be in any sense full or inclusive. We are not, however, entirely without knowledge which is organized upon the active principle. Some few books stand out from others even today because of their functional approach. In such studies the authors have concerned themselves with the influence of some mode of activity upon human conduct.

⁴ Ephesians 5:25.

⁵ Revelation 22:1.

⁶ Students interested in symbolic teaching will do well to consult Hamblen, Emily S. *On the Minor Prophecies of William Blake*. E. P. Dutton & Co., Inc., New York, 1930.

Human activities are to be judged by the results which they have upon all men. What does a picture or an art gallery do to individuals or to communities? Is its influence constructive or destructive? Here is a true criterion for the criticism of art. What has Leonardo da Vinci's Virgin of the Rocks done to men? What the work of Lorenzo de Credi, Bronzino, Hals, Sargeant, Cezanne, Van Gogh? What has music done to our culture? What the music of Purcell, of Gluck, of Scriabin?

Cyril Scott has used just such an approach in his admirable study of the influence of music upon human life.⁷ He pictures Handel as the musical founder of the Victorian era. Through the music of Handel the English people were awakened to awe and reverence, which developed into an exaggerated idea of both the sacred and the profane. Beethoven is seen as a great humanizer, awakening the human heart to a wider sympathy for men. The healing effects of his music have tended to make life more tolerable for individuals and for society as a whole. Mendelssohn went farther in a similar direction, and his music brought home to men the beauty of sympathy itself. Such music was a fitting precursor to a widened sense of social responsibility and the dignity of all humanity. Chopin was notable for an esthetic sensibility which worked for refinement. Schumann was the musician of

⁷ Scott, Cyril. *Music, Its Secret Influence Throughout the Ages*. David McKay Co., 604-608 South Washington Square, Philadelphia. This book is recommended here for its interpretation of the influence of music, not for its occult explanations. I am of the opinion that they are not essential to the ideas upon music expressed here, which can be observationally derived without occult aid. The book is doubtless influenced by another valuable book, long out of print: Haweis, H. R. *Music and Morals*. Harper and Brothers, New York, 1900. This book is well worth reading today because of its functional outlook.

child nature, and has awakened many of the emotions which have led to newer schools and better understanding of children. The effect of Wagner's music is spiritual, and so in a sense he was the forerunner and a maker of modern trends away from materialism, trends which are only now finding their expression in the laggard words of scientists and scholars. The dream of Scriabin was never realized. Death prevented the completion of what was to be his masterpiece, the *Misterium*. It was to be designed not merely as an expression of the composer's own spiritual ideas, but to have a spiritualizing effect upon his listeners. "It was to have been delivered in the form of a service that would consist of a combined and simultaneous appeal to all the senses by all the arts."⁸ What a ritual it would have been! What might have been its far-reaching effects? Whatever they may be they are left for another—an unfinished, unrealized dream.

How true it is that the truest study of mankind is man. Each man himself possesses a function: the function of his own being. What a way to measure men. Not as they are but as they do. What has been the effect of this life or that upon the home, the family, the nation, the culture, on history itself? So to regard men would be to create clear values for living. For each man who has lived has been a demonstration of what his life has done. What has been the effect upon mankind of the life of Paul, of Napoleon, of Francis W. Parker? How did they live, and how have others lived in consequence? We need a clear study of humanity, of the lives of men. Up against the measuring rod of a myriad lives lived through to the end must we

⁸ See Montagu-Nathan. *Contemporary Russian Composers*, Chapter III.

stand these little lives of ours and of our heroes. What is their stature? Do they harm or do they heal? Do they redeem or do they kill? As the blatant figures of our present world strut proudly across the contemporary scene let us know them by their deeds.

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